DESIGN CULTURE (OF) LANGUAGES

AESTHETICS EXPRESSION VISUAL
Nicolò Ceccarelli, University of Sassari, Italy
“Exploring the cultural power of the visual language to engage audiences with wit, reason and passion... conveying ideas and emotions so to actually touch people and make them think.”

Chele Esteve Sendra, Polytechnic University of Valencia, Spain
“A visual language that launch from its genesis to build its own boundaries and manage transformations towards new aesthetic proportions.”

Spartaco Paris, Sapienza University of Rome, Italy
“Within the heterogeneous post-modern world of languages, we are looking for investigations which could still consider the materiality and consistency of things as matter of expressions and challenge of technologies and tools.”

Merav Perez, Shenkar College of Engineering and Design, Israel
“In the detection of rising design accents, we are looking for explorations of the expressive possibilities offered by evolving mediums, technologies, and visualization tools.”
A Sidewalk museum. 
Exhibiting the collective dimension of the moving image

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Abstract | A research project for a temporary exhibition about Alghero prison’s historical Museum explores the intersections among the physical and virtual mise-en-scène of information. Structured as a set of custom-made modular exhibiting stalls the project explores how to enrich the visit experience by triggering the public’s interest and participation.

Two problematic domains underly the project. First, the exploration of the extended potential of audiovisuals in a context such as the present, in which technology radically modifies the relationships between the visible boundaries – of what we, at large, consider as “screens” – and moving image products. Secondly, the investigation of the possible contaminations between the diegetic space of the audiovisual field and the narrative power of the expository medium, on the grounds of a long-established history of orchestration between spatial, visual components and storytelling. In perspective, our aim is to verify how audiovisual artifacts can enhance the collective dimension of fruition, in order to achieve memorable informative experiences.

KEYWORDS | EXHIBIT DESIGN, AUDIOVISUAL, DIEGETIC SPACE, STORYTELLING, ENVIRONMENTAL DESIGN
1. Introduction

The careful orchestration of the spatial and visual components has always been a tenet of the craft of exhibiting, a design practice in which the capacity of both domains to convey information and creating meaning finds a perfect synthesis. Despite the widespread presence of audiovisual and multimedia artifacts, having less and less an auxiliary function and playing instead an increasingly active role in the exhibiting practice, the relevance of the extension of this relationship in the realm of the moving image appears largely underestimated.

As a matter of fact, the exploitation of various forms of moving imagery within extremely sophisticated exhibition arrangements is not new and has been explored in stimulating ways well before the introduction of cinema itself. Early traces of such an integration can be found in Athanasius Kircher’s gallery of wonders in XVII Rome’s Jesuit College. Here, at the height of baroque’s taste to create amazement, the resourceful and multi-faceted scholar exploited on a regular basis (Findlen, 2004, p.335) a variety of ‘multi-media’ technical arrangements and tricks – early magic lanterns, automata, and the like – to impress his audiences.

A central space in the chronicles of 18th century’s Paris was instead taken by Etienne-Gaspard Robertson, who (following the tracks of his enigmatic predecessor, Paul Philidor) orchestrated highly sophisticated – and very successful in terms of public’s attendance – multimedia shows, combining in his Phantasmagories high-end adaptations of the magic lantern with a rich repertory of traditional theatrical effects, and enjoying extraordinary success in terms of public’s attendance (Mannoni, 1999, p.144).

Much more recently, and in very different circumstances such as major international exhibitions, a similar approach can be traced to the pioneering early multimedia shows by Ray and Charles Eames – such as the multi-screen presentations Glimpses of the US, for 1959 Moscow World’s Fair and Think at IBM’s 1964 Pavilion at New York World’s Fair (Ince & Johnson, 2015) – or by Roman Kroitor’s in the Labyrinth, multiscreen presentation at Montreal’s 1967 Expo Labyrinth Pavilion (Kroitor, et al., 1979).

Despite being obviously the product of very specific circumstances, of peculiar cultural and technical environments, and of the unique personalities of their authors, the above examples provide us with an inspiring reference in terms of the power that the contamination between the narrative capacity of the experience of space and its diegetic counterpart of the moving image can bring to the craft of exhibit design.

2. The project

The intersections between the physical and virtual mise-en-scène of information in exhibit design, a research subject that has been central to our scholarly interests over the last few years, were at the core of one of the projects in which our research unit has been busy
recently for a ‘Sidewalk Museum’, a temporary exhibition aimed at enhancing the visit to Alghero’s prison’s historic Museum. The framework in which this endeavor has taken place is that of a growing interest on the subject of the prison universe. Something that over the last few years has determined, in Italy as well as in Sardinia, to the re-discovery in terms of knowledge, memory and heritage, of abandoned institutes of imprisonment and of the documents and artifacts preserved in their archives.

Originated from an independent collaboration between our research unit and Alghero’s city prison, our effort benefited last year of a grant from the Sardinia Regional Government in the domain of audiovisual experimentation, which allowed us to extend the project’s original pro-bono core to a wider research effort.

The project for a Sidewalk Museum was sparked by a very practical matter. The museum is the only of its kind to be housed in a fully functioning prison, being therefore open to the public only for a day and a half a year, on the occasion of the “Monumenti Aperti” (Open Monuments) event. For obvious security reasons, access is severely constrained: visitors need to register and must deposit personal effects prior to entering. As the venue, with its turnout of more than fifteen hundred visitors in one and a half day, is among the most visited attractions during the event, this inevitably generates bottlenecks, long waiting times and queues at the entrance of the structure.

Figure 1. Stalls in the original core exhibit on the sidewalk outside Alghero’s prison.
Our contribution has therefore taken shape as a custom-made prototype, aimed at integrating the actual visit through temporary and portable display modes. Arranged immediately outside the prison’s gate, our design took the shape of a series of modular stalls meant at enriching – inside and outside the prison building – the experience before, during and after the visit.

The project, besides allowing the public to while away the time, deliberately plays on the visitor’s expectations, turning the intermediate waiting time into an opportunity to enrich the overall experience.

The interplay between the physical and virtual dimensions, in which the various stalls stage some of key themes associated with the actual museum visit, is hence a key step towards the desired anticipation effect.

![Figure 2-5. The original artefact which inspired the project, and various steps of the exhibition set up.](image)

The very peculiar conditions associated with this project have, from the very beginning, had an impact on its structure. A key component of the project lies in its modular nature. Inspired by a device – part of the museum collection – used to carry food in the prison’s branches, the exhibit stalls we designed are thought as stalls, to be arranged along the line of visitors waiting outside the entrance to the prison. Although apparently identical, once opened the stalls transform – to stimulate and intrigue the public – integrating physical, visual, textual and multimedia elements to deliver various presentation functions on a selection of key topics referring to the world of detention and prison life. The
metamorphosis effects that this transformation produces is not casual: the stalls are explicitly designed as some sort of wonder cabinets, each aimed at sparking curiosity and amazement through a specific register and tone, and taking advantage of a vast repertoire of re-constructions, replicas, allegories, similitudes, and of narrative approaches (Lugli, 1997).

The funding we were granted allowed us to extend the original four-piece exhibit adding new modules and pursuing ideas that could only be sketched in the original development. The audiovisual component of the project, already present from the early developments, was expanded in this second research phase.

Figure 6-7. The Museum at work during the ‘Monumenti Aperti’ event.

3. A research framework

Although our portable museum project was triggered by a very practical series of circumstances – the early prototype displays we created have already been successfully displayed during the Alghero Monumenti Aperti sessions of 2018 and 2019 – the project was for us also an important opportunity to explore, and test, some more general ideas.

The first deals with the exploration of the extended (Youngblood, 1970) potential of the audiovisual text in a context such as today’s, in which the traditional relationships between the visible boundaries – what we, at large, consider as a “screen” (Carbone, 2016) – and the artifacts based on the moving image, are radically modified by technology. To an extent that while today almost virtually anything can be nowadays considered as a screen, each of us carries in its pocket a tiny, portable and hyper-connected cinema screen, in the shape of a smartphone.

Just as the screen-space tends therefore to become ubiquitous, as well as fragmented and rarefied, the second investigates the contaminations between the diegetic capacity of the audiovisual medium and the narrative power of space as an expository medium, to convey meaning, by narrating stories in the domain of exhibition design.

Before discussing both questions in more detail, it may be useful to limit the domain of interest of our research, which happens to be connected with a series of projects we have been recently engaged with (Ceccarelli, 2019 and 2020). We refer here to very specific forms.
of audiovisual-multimedia presentations, some of which we have briefly considered above, mainly associated with large public events, exhibits and expositions, in which informative artifacts that lay between the actual fields of the moving image and of exhibit design are set to operate. This is a domain ‘naturally’ open to experimentation in which novelty and innovation are not only accepted, but somehow explicitly required and expected.

4. immersivity and engagement: the moving image in the exhibiting practice

A first question lies in how any ‘moving image’ artifact relates with the public in the context of an exhibition — and in the degree of engagement, or immersitivity achieved, in respect of the actual way in which this specific contribution is arranged or staged? The question shall be discussed from the two points of view of the physical and/or psychological components of this relationship, or engagement.

If we take under scrutiny the evolutionary steps that the moving image has experienced since its introduction we can see that the relationship between a medium’s audience and the actual space in which a given ‘show’ was taking place has not always been stable and univocal.

Since the appearance of the first cinematographic projections by the Lumière brothers in 1895, the screen format – which is generally referred to as the proportion between the frame’s height and width – has gone through a series of radical transformations. The condition generally associated with the ‘cinema show’: where an audience faces a large screen while sitting in a darkened room, was in fact achieved more or less permanently only in the 20’s of the XX Century. The early Lumière screenings where followed, from 1905, by the rise of the Nickelodeons (Belton, 1992, p.185), and since then a variety of practical, technological, social and ideological factors have played a part in determining this proportional relationship between the public and the moving image. The original 35mm film format, in its classic 4:3 ratio, consolidated through the following decades as a major standard for the emerging cinematic medium. In the 50’s, the idea of ‘passive viewing’ associated with what was started to be thought as a narrow-screen format opened the way to new widescreen formats such as Cinerama Vista Vision, Panavision, Cinemascope and so on (Belton, 1992).

And yet, although we usually associate the ‘cinema show’ to a presentation format in which “a fixed position for both the image and the spectator to occupy and a new, more ‘realistic’ scale to use in defining their relationship” (Belton, 1992, p.31) solutions such as the Kinetoscope peep show, which was very successful at the beginning of last century, emerged as a serious competitor in offering a way to the emerging technology of the moving image.

The set of developments that through the projected frame, turned the spectator into a social subject, changing its relationship with the image from private to public and from individual
to social, the ‘presentation space’ itself in terms of format and even of its architecture, went through many transformations which greatly impacted the perception, participation degree of immersivity of the moving image.

Crucial shifts such in this direction include the appearance of drive-ins in suburban America in the ‘50’s, the huge post-war diffusion of the TV and later on of cable-TV and of VHS’ based home-video (which incidentally almost terminated cinema in the ‘70’s). The overall proportions, and the viewing conditions have changed radically again, with the transformation of many original theatre halls into multiplexes or, more recently, as digital streaming services have become a prime distribution channel for the entertainment industry.

The critical part that the physiology of vision plays in this relationship is hardly arguable. Nevertheless, as the cinema theatre tends to become an increasing exotic place to digital natives, the fact that contemporary audiences keep experiencing empathy, fear, emotions…in front of the tiny screen of a smartphone, proves that engaging an audience transcends the technicalities of spatial and of physical presence offered by the technological solution of the day.

The power of the moving image and of its ‘shadows and lights’ also rely significantly on the subtler psychological factors determined by the sophisticated system of narrative codes which lay at the very foundations of cinema as a universal language.

Among many others, cinema historian and critic Noel Burch (Burch, 1990) has highlighted the key traits of the system, that he has defined as the ‘Institutional Mode of Representation’ (MRI). A set of rules on which the language of the moving image has been modeled, principally by Hollywood’s mainstream cinema, in the first part of last century, soon becoming dominant in the industry. Within Burch’s sophisticated argumentations on the many consequences of this step on how movies are conceived, shot and assembled (and therefore on how, as spectators, we relate to them), it is useful to focus on some aspects of his theory which are particularly relevant in our discourse. According to Burch, MRI relies on the cinematic illusion of reality based on the idea of a sensorially isolated spectator, placed at the center of the narrative (and incidentally, in the middle of a cinema theatre…or, in front of a TV set). Through the development of its systems of rules (narrative devices in fact, often even tricks), the ways through which the language of cinema engages its audience follow trajectories that go beyond the mere physical immersive dimension we have discussed earlier. In this perspective, rather than by any specific viewing condition, a key component of the immersive experience we get by going to the movies, lays in the way the ‘story’, the actual series of visual events, narrated from the abstract and idealized point of view characteristic of MRI, is presented to us.

In this framework, a key step for the development of our project has been exploring ways in which to combine the languages and narrative powers of space and the diegetic ones of the moving image. The unexpected development of some of our original thoughts on how to process this double relationship ended up highlighting another aspect will possibly lead the
way to future developments: the one connected with experiencing the collective dimension of the moving image.

5. Exhibiting and the collective dimension of the moving image

Released in 1973, one of Federico Fellini’s most popular films, *Amarcord* (“I remember”), offers an extraordinary picture of cinema as a genuine popular spectacle. Set in a small provincial Italian town in the 30’s, the story is an auto-biographical narration of the teen-age years of a group kids (Fellini himself and his closest friends) during fascist Italy. A key place through the development of the entire story is the local movie theatre, which in Fellini’s *mise-en-scène* is as an extension, almost an allegory, of the town’s main square. A place where the community converges to lose itself in the magic of cinema, but also a glorious stage for the local life. Despite having gathered in the theatre mainly to watch the movie, the audience depicted in the film – the humanity so central to Fellini’s cinema – laugh, smoke, loudly interacting with each other. The actual screening is continuously interrupted, as a significant part of the actual show takes place at the opposite side of the silver screen.

The atmosphere of *Amarcord*’s movie theatre relates to the very early days of the moving image, in which screenings would often take place in improvised form, on rudimentary screens hastily set up in fairgrounds and village festivals. Back then, cinema would take place in those “disjointed, open, relaxed forms liked by popular audiences” (Burch, 1990, p.46). As a show, cinema competed therefore with other forms of entertainment, with distractions and interruptions being a regular part of the program. Not infrequently, the staging presupposed the presence of a host / commentator in flesh and blood, of musicians, fighters and performers, presenting atmospheres closer to the circus, the popular theater or the café *chantant*, rather than to that of a silent darkened room we tend to associate with the idea of a cinema theatre. The movie theatre depicted in Fellini’s masterpiece is a fine example of a kind of shared space, where “the spectator’s gaze becomes a collective look” (Belton, p.32), and of one of the many ways in which, in its long and honorable history, the moving image and its public have interacted, or in other words of the idea of ‘spectatorship’.

On these grounds, our research project’s experimental perspective lies in the exploration of how the design of audiovisual artifacts of various kinds can contribute, beyond the more obvious objectives of conveying informative contents, in triggering the social, and to some extent collective, experiences evoked by Fellini in his *Amarcord*. The context in which this endeavor has taken place is the inherently theatrical stage of the public exhibition. A very particular kind of place – in fact a very busy road in the centre of our town – where we confronted with exploring the idea of combining a non-static position of our public of visitors/spectators with the spatial power of the physical *mise-en-scène*.
6. Interplaying with contrasts

In presentation terms, the project revives many elements from the classic repertoire of the exhibit design craft. This either by taking advantage, one display after the other, of a rich toolbox of presentation tricks comprising replicas, allegories, similitudes; and, on a more conceptual ground, interplaying with contrast and paradoxes. In both cases, the goal is to spark curiosity and amazement in the audience in order to ease the transmission of sensitive meaning.

To present the topic of social life in prison life, for instance, we created a display on ‘social interaction’, presenting a mock table football game in which two teams confront each other. Modeled in the modular form designed for all our displays, the display appears absolutely normal from a distance, but as visitors come by along the cue something strange pops-out: the composition of the two teams is odd, as three red players confront more than twenty grey ones, to highlight the radical shift in a prison inmate’s social life connected with being deprived of one’s freedom.

In another display we present a selection of mug shots, part of the Museum’s historic collection. The precious glass-mounted negatives, some of which go back to the end of the 19th Century, depict (front and side) the inmates on their very last day of serving their sentence. The images are presented as a slideshow on the screen of a digital tablet framed in the structure and facing a blatantly fake projector. The approach is ironic, aimed at sparking curiosity: a light in the projector, temporized in synch with the picture slideshow, simulates (in an intentional not too convincingly fashion) an actual projection.

A more subtle level in which the contrast factor is pursued is in the duality of the relationships that in our system of displays occurs between analogic and digital, physical and virtual, high-tech and positively no-tech. A key source of inspiration for the development of this part of our research came from experimental work carried out in the realms of video-art. Despite their specific angles, research approaches and motivations, artist such as Jeffrey Shaw, Nam June Paik, or the Studio Azzurro collective’s explorations of the connections between the narrative dimensions of space and audiovisuals through technology have been for us important reference points. In this respect, that fact that the work of such authors has often been associated with the idea of environment – Shaw’s Legible City, ‘responsive environment’ (1988-91), Studio Azzurro’s multi-screen video installation, or ‘video-environment’ The swimmer (1983-84), for instance – is everything but incidental.

Another stimulating point of reference was the idea behind Nicolas Bourriaud’s Relational Aesthetics. His interpretation of the exhibition space as a promoter of dialogue and social participation has been instrumental to the attempt we have pursued in our project, by contaminating space and the moving image, and working, after Bourriaud himself, on a shared place made of relationships and capable of creating relationships (Bourriaud, 2010).

Finally, Nam June Paik’s assemblies – specifically his very famous Tv Cello of 1971, in which the physical persona of cello player Charlotte Moorman and its virtual video counterpart
tend to blend into a completely new performative entity (Lee & Frieling, 2019) – have represented a relevant source of inspiration in terms of how to match our research findings with the actual design of our portable museum.

This second phase of our research project is associated with the idea of enhancing the existing core group of displays with the contribution of specifically tailored audiovisual material. One of the displays designed in this new phase presents tattoos as a typical form of internal language between the prison inmates. The presentation was developed on the grounds of the extraordinary collection of samples from the 19th Century gathered by the controversial criminologist Cesare Lombroso. We created for the scope a short audiovisual piece illustrating the historical context, with samples of classic tattoos. The short video, which runs on a digital tablet, is mounted on top of a display stall, where individual visitors can only see it through a fake visor, reminding both Edison’s ‘peepshow’ Kinetoscope and a prison’s cell spyhole. The physical constraint of having to bend over the visor is a key factor in this display, as it implies from the user an active and physical, individual act.

Figure 8-9. The project’s audiovisual component in two of the exhibits

On the track of our ‘contrast strategy’ we devised the re-design of a display part of the original core of the exhibit. The display interprets the evolutions in the relationship between space-society by describing evolutions in the architecture of prisons. The display’s original design, based on schematic 3D models was therefore enhanced via an Augmented Reality app, which, by interacting with the basic shapes in display, makes it possible to extend the presentation well beyond the physical constrains of the exhibit. The same set of basic shapes displayed on the stall’s top, can be used as the ‘tracking’ reference starting point, so that multiple-users, through multiple devices, can explore the same virtual presentation in parallel.

Whereas the display about tattoos pivoted intentionally on separate individual experiences of the materials on display, this one ideally allows to share a same informative nucleu, encouraging the interaction – either in the virtual or in the physical realm – between different visitors.
Figure 10-11. Augmented Reality was explored as a way to highlight the potential interactions between the physical and virtual dimensions of the exhibit as well as between visitors.

Figure 12. Multimedia contents developed for the display on the language of tattoos in prison.
7. Conclusions

Originated from an independent collaboration between our research unit and the Direction of Alghero’s city prison, primarily aimed at responding to a series of very practical issues associated to the occasional visit to its small historic museum, our project for a Sidewalk Museum turned out being a unique research opportunity.

A process of conscious contamination among the narrative powers of space, tangible objects and physical arrangements and the diegetic capacity of the language of the moving image has allowed us to explore a new engaging area for the presentation of a sensitive topic such as that of life in prison.

In front of a society dominated by the technological promises of personalization, portability and social interaction, our project for a Sidewalk Museum aims at bringing a small but
refreshing contribution to the design cultures in the domain of public exhibitions. A contribution based on exploring ways in which, rather than isolating the public in endless sets of individual users, digital technology and audiovisual communication can be cross-contaminated with the materiality of the physical space to create new hybrid experiences and trigger interactions with the material on display as well as with the other visitors.

References


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**Acknowledgements:** The Sidewalk Museum project was started as a pro-bono effort by DADU’s AnimazioneDesign research unit. A second development phase of the project was made possible by a grant from the Regional Government of Sardinia for research projects in the domain of audiovisual languages (L.R.15,2006)

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Abstract to figurative, and everything in between: visual design approaches and linguistic codes of a traditional form of animated product

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Abstract | Animated artefacts are demanding and successful tools to face articulated topics concisely by embracing different codes and style of representation. Among different animation techniques, stop-motion, the oldest one rooted in George Méliès trick-films in late 1980AD, has recently been recognised as a valid and immediate pedagogic tool since the production process of a stop-motion film is easier to understand and handle, and animated objects are tactilely manipulated. This paper describes theoretical premises, teaching approaches and design outputs of a stop-motion workshop held in Alghero (Sardinia, Italy) in September 2019. At the end of the workshop students were expected to produce a short film about a famous tragic event related to Sardinian prisons, choosing appropriate visual styles and languages. Artefacts are very different and reveal the technique as a communication design tool highly effective through both figurative and abstract stylistic approaches, and both descriptive and metaphoric narrative languages.

KEYWORDS | STOP-MOTION ANIMATION, VISUAL DESIGN, PEDAGOGY, CODES OF REPRESENTATION, NARRATIVE LANGUAGES
1. Introduction: Theoretical assumptions

In the last few decades animated artefacts have been recognised as precious design products, very effective in answering communication and pedagogical challenges of contemporary society due to their being informative, pervasive, intrinsically capable of crossing cultural and generational boundaries, and versatile from both visual and linguistic standpoints. As for any form of fictional product and communication tool, indeed, an “animated film is clearly a product of its time”, conceived, produced and released into a cultural scenario, with an existing technology, delivering certain messages for a specific target (Milligan, 2016, p.3). Animated artefacts have dealt with a broad spectrum of contents, ranging from social to psychological issues, with informative and pedagogical objectives. Not by chance animation and motion design artefacts have been successfully chosen as visual communication tools to deal with scientific contents, staging different codes of representation according to the targeted audience: from the fictional scientific anime “cells at work!” (2018), to the informative motion graphics produced by the Australian communication design agency “Animate Your Science”.

Animated films, furthermore, hold a pedagogical function as socializers, teach social values and moral lessons (Giroux, 1999; King, et al., 2010), and deeply influence “children’s culture and their everyday lives” (Giroux, p.2). In 1973 Bob Heyman acknowledged entertainment as an educational force and coined the term “edutainment”, today largely used to address media culture power to educate and regulate meanings and values. Even when animated narratives take place in fictional worlds and stage imaginary events, animation, better than any other fictional medium, inspires opinions, stretches the imagination, creates space for new experimentations and has a critical impact.

“The dynamic of Animation art lies in the narrative structure of non-existing world, while the events that take place are imaginary as well. The creator constructs his own world for taking aim at projecting his opinion, criticizing and developing his beliefs through the symbols and abstraction.” (Mouri, 2014, p. 26)

The strength of animation language, indeed, is its extraordinary ability to evoke meanings using symbols encoded in a collective imagery, and its dimension of abstraction. In this paper we will distinguish visual codes and narrative languages by applying concepts stemming from the theory of representation, media literacy, narratology and semiotics and we’ll briefly explain how we engage them for analytical purposes.

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1 To deepen concepts of pervasiveness, versatility and communication qualities applied to the design of animated artefacts, we suggest consulting Laura Marks’ text The Skin of the Film: Intercultural Cinema, Embodiment, and the Senses (2000), Nicolò Ceccarelli and Carlo Turri’s book Progettazione in movimento (2010), Suzanne Buchan’s book Pervasive Animation (2013).
Animated films stage different languages and visual codes and allow dealing with articulated and complex issues in both symbolic and abstract ways. Animated visual codes, therefore, do not just “merely reflect a world outside the bounds of the text, but [can] rewrite and reconstruct them” (Khun, 1985, p.48) as they play with shapes, forms, proportion, manipulate elements and provide an altered and modified representation of images that in first place aim at making an event or an action understandable and intelligible. The fluidity of animated visual codes makes the medium particularly suited as a model for analysing the production process of audio-visual artefacts engaging different codes of representation, narrative languages, design approaches, and eliciting unique synesthetic experiences. The 'unit of measure' that we will use to interpret visual aspects of kinetic products stems from the classification of motion graphic products’ visual categories theorised by two American scholars: Bruce Block (2008) and Matt Woolman (2004), who, after identifying those categories (shape, spatiality, volume, colour, surface, movement, complexity), evaluated them according to a dualistic approach and a logic of binary opposition. Abstraction is the visual parameter that we will investigate, and, by following mentioned logic of binary opposition between two extremes, an animated artefact will be defined as more abstract (or simply abstract) or less abstract (or figurative). In animation the concept of abstraction refers to a type of filmic style that experiment with shapes, colours, narration. Mohamed Fauzi Naeim defines abstract animation in this way:

“Abstract animation forgoes story plot and character development but focuses on gesture, imageries and techniques. The images exhibited do not necessarily have to be consistent with each other, though there is a rhythmic pattern (...) In abstract animation, what the author’s trying to say is more important than the actual execution of the animation itself.” (Fauzi Naeim, 2017, p.1)

Since animated artefacts move between abstract and figurative visual representations, the Italian researcher Carlo Turri (2010) recognised in the medium a natural flexibility and the ability of staging different levels of abstraction using signs and symbols already encoded in the collective imagery. The flexibility interests both visual codes and the narrative language at the diegetic level. The literary theory of semiotics says that language is a code that uses signifiers to produce meanings (the signified). Kinetic artefacts, and especially animation, plays with these symbolic elements at several levels starting from the structure of the storyline. Even by exploring and evaluating this further parameter we need a dualistic approach: if visual elements can be either abstract or figurative, narrative language can be either literal/descriptive or metaphoric, and these two extremes can successfully embrace either an abstract or figurative code of representation.

Stemming from these premises, we will, in the next section, describe the outputs of a stop-motion animation workshop held in Alghero (Sardinia, Italy) in September 2019, that engaged design students in experimenting with stop-motion animation as a communication design tool by using different visual styles and narrative languages.
2. The stop-motion workshop

The didactic experience outlined in this paper is an opportunity to verify the relationship between animation and communication by virtue of different languages and visual codes. The workshop was meant for architecture students with no previous knowledge of animation principles, software and techniques. The twelve participants came from either a bachelor’s degree in Architecture or from a master’s degree in Architecture-curriculum design, and most of them were local with the exception of an Erasmus student from the Czech Republic. The workshop aimed to combine three key aspects:

- The development of a critical thinking on how to use stop-motion animation language and visual codes in the more general framework of project communication;
- The transmission of practical knowledge through a set of exercises and an assigned project work;
- The acquisition of media literacy notions by using appropriate terminology and conventions, and by understanding and creating audio-visual texts.

2.1 Stop-motion animation technique

Stop motion is the oldest animation technique and rooted in George Méliès random discovery of camera-trick in late ‘800AD (Harryhausen & Dalton, 2008). Méliès realized that if the camera stopped shooting and then restarted after objects on stage were moved or replaced, an illusion of apparitions, disappearances and transformations was created. However, Méliès didn’t see the potential of this discovery, and the first films using objects (toys) were made by James Stuart Balckton and Albert Edward Smith in 1897 (Maselli, 2018). This animation technique involves capturing images of:

> “something (…) manipulated, moved incrementally by hand, whether it’s a puppet, a pile of sand, some clay, or paper cut-out. Another increment and another image. When the images are strung together at an appropriate speed, the viewer is fooled into thinking something has moved in a continual manner.” (Purves, 2008, p.9)

But this movement is an illusion since it happens between the frames, and what the spectator really sees is what occurs when the camera takes the shot, i.e. when everything is still and nothing happens. Stop-Motion equally embraces photography, computer graphics, performing arts, sculpture, knowledge of anatomy of moving bodies and video editing. To make a stop-motion video we need a camera and an object to be photographed, following a logic of movement, direction and transformation. Stop-motion animated products are also powerful, expressive communication tools that open up possibilities of experimenting and experiencing languages and codes of representation while approaching material objects visually, for the audience, and tactilely, for the animator (Maselli, 2019). Stop motion is remarkably versatile in several ways as it can be used for many subjects, with every sort of materials and objects (plasticine, silicone, toys, legos, household objects), it can use
figurative or abstract codes of representations and, as any other form of animated artefact, it can narrate in either linear or non-linear ways. Stop-motion has been used for pedagogic purposes since the material qualities of the medium makes the production process easier to understand and to handle thanks to the direct manipulation of objects, puppets or flat figures. Stop-motion animation allows us to:

- Learn tactiley how animation principles work by applying them to real objects;
- Interact with materials and manipulate them by hand, also improving craft skills;
- Work in groups. Since stop-motion requires many skills and inclinations, from artistic and craftsmanship talent to organizational skills, collaboration and teamwork are essential.

During the workshop, students had to figure out how to practice working with others and to contribute to a team while improving their individual talents.

2.2 Workshop syllabus

During the five days workshop students had different activities, both practical and theoretical:

- They were provided with a theoretical overview about 120 years of technological and aesthetic evolution of stop-motion animation technique;
- They learned the twelve animation principles theorized by Disney’s animators Ollie Johnston and Frank Thomas (1981);
- They learned how to use Dragonframe, the most widely used software for stop-motion animation, utilised in large production studios such as Laika entertainment and Aardman studios;
- They worked on three exercises in cut-out (the bouncing ball, the swinging chain, the walking stickman) to practice with the technique, learn the software and understand the main animation principles;
- They produced a stop-motion short film using objects, paper, fabric, photographs and any other kind of flat element shot on a flat two-dimensional background. Students were presented with two possible narratives concerning famous events that occurred in the twentieth century and related to Sardinian prisons: the tragic story of the “bandit poet” Bachisio Falconi, and the murder of Maria Goretti, killed at the age of twelve by Alessandro Serenelli.

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Bachisio Falconi, knew as Bachis, lived in the first half of the twentieth century and is remembered as the “poet bandit”. In 1936, after the accidental death of a young policeman from Thiesi, Giuseppe Ferrandu, Bachisio was unfairly accused of murder and sentenced to 30 years, which he served only in part because in 1943 he escaped from Tramariglio prison. He was killed six years later, on December 1949, with a gunshot. He became famous.
Students worked in teams and had to follow the main phases of an audio-visual production process:

- Pre-production: subject development, visual style definition, storyboard, puppets, objects, and backgrounds creation;
- Production: camera setting, animation process;
- Post-production: video-editing, compositing, sound effects.

3. Animated outputs

Outputs approach the selected story by treating the diegetic language and the visual codes in completely different ways, either descriptive or metaphorical as the first, either abstract or figurative as the former. By documenting the process of each produced artefact, we will now describe the different materials, visual codes and narrative languages students worked with in order to complete the assignment.

3.1 Maria Goretti and Alessandro Serenelli #1

The video tells the story of Maria Goretti raped and killed by Alessandro Serenelli and focuses on the events experienced by the male character. It was produced in silhouette animation and students used flat paper monochromatic silhouettes, props and background. The style of representation is abstract as human figures and the props’ shape and appearance are extremely simplified although staged characters, objects, events and actions are perfectly recognisable. The narrative structure is linear, the language descriptive and the representation and interpretation of the events literal. The plot is divided into ten scenes that follow the chronological order of narrated events:

1. Alessandro is welcomed by the Goretti family;
2. While working in the fields, Alessandro realizes that he is in love with Maria;
3. Maria refuses Alessandro;
4. Murder of Maria;

because, while in hiding, he wrote poetry and short stories and, after his death, his wife collected them in a book: "Sardinian song composed for the great misfortune".

In July 1902, eighteen-year-old Alessandro Serenelli stabbed twelve-year-old Maria Goretti with an awl, causing her injuries that led to her death. The day of the murder, Alessandro tried to rape Maria, but, rejected, he got mad and began to hit her violently. Sentenced to prison, already in 1910 he repented and said he had dreamed of Maria in Paradise forgiving him while collecting flowers. From 1919 he was transferred to Sardinia and in the following ten years he passed from the prison in Olbia, Nuoro and Alghero. He was released from prison in 1929 after 27 years. In 1934 he asked Assunta, Maria’s mother, to be forgiven for his sin and she granted her forgiveness. In June 1950 pope Pius XII canonized Maria. Serenelli died in May 1970, at the age of 87 years old, in a convent in Macerata.
5. Alessandro exposed to public judgment and called “monster”;
6. Alessandro taken to prison;
7. Alessandro dreams of Maria forgiving him and collecting flowers;
8. Alessandro is released;
9. Alessandro obtains forgiveness from Assunta for killing her daughter;
10. Alessandro obtains beatification and ascends to paradise.

Actions performed by flat characters have an immediate and literal meaning, from the homicide to the moment of forgiveness. Nevertheless, students designed a few symbolic elements:

- A beating heart symbolically represents Alessandro’s love for Maria;
- Alessandro’s sanctification process after being forgiven by Maria’s mother is visually represented as the flat puppet ascending to paradise where Maria is waiting for him. Sarcastically students placed some kinky and provocative scenes at the end of the video after the credits and justified them as a sort of humoristic making of the story.

Figure 1. Still Frames | Andrea Tomasi, Sara Casu, Ilaria Prinzis | Alghero Summer School | September 2019.
3.2 Maria Goretti and Alessandro Serenelli #2

The video stages the story of Maria Goretti in a slightly different way compared to the previous. Flat elements in cut-out (pieces of paper, fabric, wool and photographs) and live actors captured frame by frame in pixilation were used. The visual code of representation is figurative, and the language is both descriptive and metaphorical since chronologically defined events are narrated either literally (e.g. the murder and raping attempting scenes) or by evoking symbolic elements. Metaphorical scenarios are shown in the first two scenes respectively staging Alessandro released from prison after dreaming that Maria forgives him, and flames arguably symbolizing Alessandro’s atoned sin. The video has four main scenes all temporally placed, even though they don’t follow a chronological order:

11. First scene (1927): Alessandro dreams of Maria who forgives him and gets released from prison. In this scene paper cuttings, cotton and fabric strings were used and the narrative language is predominantly metaphorical.


13. Third scene (1902): Alessandro attempts to rape Maria and kills her after rejecting him. This scene is made in pixilation with real performers (students themselves) literally simulating the action.

14. Fourth scene (1929): Beatification process of Maria begins. This last scene is made in cut-out with flat paper elements and makes use of metaphorical language.

Figure 2. Still Frames | Lara Marras, Carla Sau, Francesca Tomasi, Maurizio Zichi | Alghero Summer School | September 2019.
3.3 Maria Goretti and Alessandro Serenelli #3 (black and white)

The last video about Maria Goretti’s murder and beatification approaches the narrative in a different way. The video “black and white” has a highly abstract visual style and a cryptic metaphoric narrative language. The video doesn’t stage any event of the original storyline and focuses on the atavistic conflict between good and evil by representing these two abstracts and opposing concepts through two colours (black and white) and geometrical elements loops fighting. There are no scene changes, and passages from white to black - and vice versa - are harmonic and continuous sequences. A few symbols already encoded in the collective imagery clearly representing the addressed contraposition can be identified.

The video opening stages a collection of evocative and opposing words: innocent and guilty, angel and devil, heaven and hell. The conceptual contrast is emphasised by the colour: negative words (guilty, devil, hell) have a white fill on a black background, positive ones (innocent, angel, heaven) are in black on a white background. Right after the sequence of words, black squares appear and invade the white background by translating from right to left and from bottom to top of the scene - and vice versa - until they make the stage completely black. On the black background white squares beat and shape a cross. Squares’ translation restarts but with inverted colours: white squares cross and invade the black background until it turns white. At this point on the white background an unshaped black figure appears and flatly moved onto the stage until eating a white filled square with black strokes and exploding. In the final sequence black and white backgrounds flash and a lonely square appears and shyly beats as a symbol that the fight is far from ending.

Figure 3. Still Frames | Francesco Secchi, Fulvio Serio, Ondrej Simon | Alghero Summer School | September 2019.
3.4 Bachisio Falconi “poet bandit” #4 (su bagalliu)

The last artefact focuses on the story of the poet Bachisio. The video is produced with both three-dimensional and flat objects, and in pixilation. The narrative is metaphorical as the action turns around a symbolic element, luggage. This symbolic representation of Bachisio’s story uses both figurative and abstract visual elements. The video is a one-scene shot in which luggage is the protagonist of diverse actions. In the first part, printed objects and words and pieces of paper enter the luggage. Typologies of objects and words progressively change, and viewers observe the passage from images of everyday objects and positive words in Sardinian dialect such as paxi (peace), pesau (childhood), trabadhu (job), to images of weapons, chains, handcuffs and negative words, such as morri (death), monstru (monster), diaulu (devil), to crumpled paper arguably symbolizing confusion and corruption. When the luggage is full, it suddenly closes. Interestingly the more the elements filling the luggage get negative, the less saturated the scene becomes, until colours are completely missing, and the composition is in black and white. In the second part of the video, the luggage is closed and a human hand - shot in pixilation - re-opens and cleans it from the crumpled and confused pieces of paper on both the outside and the inside. The only left image represents the printed cover of Bachisio’s poetry book that he wrote while in hiding. The cleaning hand embraces a positive function and arguably pictures the hand of Bachisio’s wife, who collected his verses and stories after his death and made a book from them.

![Figure 4. Still Frames | Gelia Cossu, Paola Dore | Alghero Summer School | September 2019.](image)

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4 Pixilation is a stop motion technique in which live actors are shot frame-by-frame. After the picture is taken actors slightly move until the movement is complete.
3.5 Narrative languages and visual codes of representation in comparison

By observing the above-described outputs, several themes and aspects related to narrative language and visual codes emerged. Students’ efforts, focus and creativity extraordinarily leapt out in the preproduction phase. At this stage they were challenged to scan stories, to select main elements, events and actions, to think out a plot by summarizing those narratives, to use either a metaphoric linguistic register or a descriptive one, and to design a visual style of representation. In all outputs, even when students remained tied to a figurative style of representation and a descriptive language, a relevant number of symbols and levels of interpretation are detectable. Metaphoric language is traceable both in singular elements built and captured by the camera, and in the general tone of each video.

The theme of the atavistic conflict between good and evil seems to be frequently near the surface of each artefact. The conflict is symbolized by chromatic choices and geometric components in the video “black and white” or by flames and flat flowers frequently appearing in the second afore-described video.

Another theme engaged by those narratives concerns the fairness of the penal system. The last described artefact silently criticises it and emphasises Bachisio’s talent as a poet and the love of his wife who fights for clearing Bachisio’s name, socially rehabilitating his life, and spreading his poetry. The first two described videos, on the other hand, address the stiffness and justice of the penal system by staging Alessandro’s release from prison as something that occurred immediately after he affirmed dreaming about Maria forgiving his guilt. Historically speaking Alessandro was released in 1929, after 27 years of jail, although he declared himself sorry and he had already regretted his sin in 1910.

A topic critically approached by students concerns the spiritual dimension of the victim and sinner in the catholic religion, too. In the first described artefact, students synthetically, ironically, and critically staged the act of forgiveness as something easy to accomplish since Alessandro, after regretting his crime, was forgiven and easily socially rehabilitated. In the narrative, indeed, the sinner is placed side by side to the victim in heaven. Animation technique and narrative language reveal their critical impact by building powerful “metaphors that can lead to an overall lightening of contents” (Turri, 2010, p.30). In the briefly mentioned last two scenes, indeed, students staged two sarcastic but meaningful actions: (1) the cross turns upside down; (2) the scene of forgiveness turns into a scene of revenge and Assunta, Maria’s mother, comically blows Alessandro’s head.

Visual elements, as well, were meticulously designed during the preproduction phase and as illustrated, they stick with different levels of abstraction, consistent with the tone and the language of representation: flat monochromatic geometric figures, simplified flat silhouettes, cuttings of printed paper, three-dimensional objects and real actors photographed in pixilation.
4. Conclusion and evaluation

David Kolb, in 1984, theorized the effectiveness of the experiential learning model, and today this approach is widely recognised and validated specially to teach practical disciplines and skills. As a practice and material filmmaking activity stop-motion has already been explored and used in different educational fields such as architecture and design thinking. Architecture students have approached stop-motion for sketching and communicating design experiences (Zarin, et al., 2012; Al-Saati, et al., 2011). Stop motion has been used also as a tool for “motion design thinking” processes.

The described workshop experience engages stop-motion at a more basic level. The technique was explored as a way to develop communication in an immediate way regardless of the outcome, a fictional short-animated artefact in this case. As a result of the students’ experience, they thought that they could use the technique in their future work since it was revealed to be a very demanding but successful design tool quick to learn and practice and useful to understand and apply animation principles and to experiment with visual styles and codes or representation. The technical quality in terms of smoothness and visual details is quite rough, since students worked in a hurry with a new software and a new technique, but the workshop successfully demonstrated that different registers of narrative languages and visual codes can be understood, used and tested with this technique even in a short time. Furthermore, students’ manual ability, imagination and creativity were engaged in several manners and produced noteworthy outputs.

In conclusion this pedagogical experiment confirmed stop-motion animated products as highly effective for the representation of storylines through different stylistic approaches and visual codes. The workshop, on the other hand, failed to provide feedback about a possible relationship between students’ improving their knowledge of the technique and their taste in specific languages or stylistic conventions with cultural and demographic characteristics, as eleven out of twelve students had the same studies, cultural and geographic background, analogous degree levels and approximate age.

References


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Acknowledgements: We want to thank the students who participated in the workshop, who showed interest, creativity and effort in learning a new technique in a short amount of time. Thanks also to Prof. Nicolò Ceccarelli and Dr. Marco Sironi for organizing the Neo-Local Design Summer School 2019 and the described workshop.
Al-Kafiye: A Symbol of Change

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Abstract | The paper presents the argument that the Kafiye (keffiyeh-pattern/scarf/headwear) is the strongest symbol to come out of the contemporary Arab World and subsequently is a valuable tool of cultural resonance. In a world where consumption has become disposable, the Kafiye has managed to withstand fading away building a powerful narrative seeded in its expression of change. The argument is made on the necessity of preserving its historical and contextual story for cultural conservation and critical discourse, applicable to any design scholarly study. My methodology consisted of secondary and primary research conducted in Palestine, Jordan, Lebanon, Syria, Iraq, UAE, KSA, Holland, France, England and the US exploring old manuscripts and scholar publications as well as observation and interviews with design practitioners, fashion designers, photographers, Middle Eastern and Arab scholars, historians, linguists, fashion scholars, culture academics over a decade. The core of the research revolves around the Hatta (black and white pattern design).

KEYWORDS | AL-KAFIYE, ICON, SYMBOL MATERIAL CULTURE, VISUAL
Note: I use the different terminology in my paper to denote relevance and authenticity – Kufiya is referencing the traditional head garb, Hatta relates to Palestine, and Shmagh to Mesopotamia. My quest in general is to define a framework- what I call the Kafiye (from Lebanese dialect.) I do not use the word Keffiyeh as officially transcribed in English. My use of Arab, Arabia, Arabs and Arab World denotes the region and countries where Arabic is the official language.

1. Introduction

Al-Kafiye is the strongest symbol to come out of the contemporary Arab World. This paper will be dedicated to explaining why that is, by setting the scene, tracing it back to its roots and establishing a contemporary definition and context. Through the lens of design, we can learn about the rich nuances of social, cultural, economic and political fabric.

The story of this powerful symbol, accessory and design detail has played many parts in diverse moments and keeps adapting with globalization and time. Treading the realms of street, politics, traditional garb, trends and catwalks, this object has transcended form and various functions to become more than just a simple item, but a global visual language denoting revolt and revolution, just as relevant today as ever.

The journey to discover and to try and contextualize al-Kafiye, what it stands for and what it means today is not meant to be limiting in definition, quite the contrary. Only by looking at the elements that have made this an icon, can we really start to map its role. Starting from Ancient Mesopotamia and reaching people all over the world, al-Kafiye constitutes a rare and noteworthy platform for a rich study in identity, design and material culture. Its influence lies in its power to adapt, evolve and exchange. As traditions are appropriated and transformed, representations and meanings adjust accordingly. The challenge and simultaneous contradictory messages – cool, street, trendy, terrorist, revolutionary, political, positive, negative --- is what makes al-Kafiye relevant and complex. It does not pass unnoticed, especially in contextualizing its symbolism over time and space.
2. Origins and Spread

2.1 Rise of the Pattern: First Traces

To be able to deconstruct, understand and frame al-Kafiye, it is key to trace back its path from its inception during ancient times until today before even trying to understand its dissemination within the Arab world and then to the West, its resonance and meaning.

The origin of the design can be traced back to Sumeria. The civilizations that developed in Ancient Mesopotamia, Bilad Ma Bayn Al Nahrayn - land between the two rivers: Tigris and Euphrates, between 3000 and 300 B.C. cultivated impressive skills for fashioning clothing and textiles. The evidence of these civilizations’ clothing remains on sculptures, pottery, and in writings left on tablets and royal tombs. It indicates that a thriving textile or fabric industry existed in the early civilizations of Mesopotamia.

Mesopotamian priests, during Sumerian times, wore black during dry summer seasons, believed to signify the scarcity of agricultural wealth during those periods. During the more
prosperous and rainy seasons like winter and spring, where agriculture, hunting, and fishing prospered, high priests used to wear white from head to toe. These were religious figures responsible for nature - abundance and wealth - and denoted rituals and beliefs through their dress and costumes. Due to the proximity of the area to water and their reliance on fishing, it was very important to have great season and catch to survive. A variety of these ‘holy men’ wore a lot of symbols derived from fishing culture (Al-Jader, 1985). Some of those high priests used to place on their heads and over their white headpiece a black net-like piece made from wool similar to a fishing net (Band, 1980-83) symbolizing wealth and fortune in the fishing season. (Hussein, 1991)

With time, these two separate pieces evolved into one: what can be considered the precursor of the black and white pattern headwear. Merged together to create a woven fishnet-derived pattern, similar in fashion to the one recognized today. At that time, it was believed that the weavers used to also add geometric lines and abstract designs of fish fins and shells. Quite original in its conception, the initial pattern was derived from the land and sea as a clothing item with symbolic mythological value.

2.2 Al-Kufiya: Meaning and Roots

Centuries later, with the arrival of the Prophet and the beginning of the rise of Islam, the city al-Kufa (Iraq) became the cultural capital of Islam. It was the center of production of weapons and textiles for the region. (El-Hakim, 1989) Due to the Muslim’s focus on clothing and hygiene as per the Prophet’s guidance, the textile industry grew and prospered. It was during that period that the first mentions of a new item of headwear named al-Kufiya started appearing, the earliest that could be traced back through ancient referential text. (Al-Obaydi, 1981) As it appeared in James Silk Buckingham, British author and traveler also described, “Arabs of the desert stand out, are differentiated with their Kufiyas of silk and cotton. (Buckingham, 1969)

There is a debate around the source of the word, its meanings and genesis. Reinhart Dozy, was the first Western historian, a Dutch scholar of Arabic language, history and literature of French origins, to transcribe a dictionary of Arab dress, a reference until today. His Dictionnaire détaillé des noms des vêtements chez les Arabes (1984) stamped Dozy as one of the most learned and critical Arabic scholars of his era.

In it he described the Kufiya as “a piece of cloth that is worn on the head. It has an equal length and a width; it can have different colors, generally dark red or light green and yellow with strips that can be wide or narrow. On both of the opposite borders it has fringes composed by soft cords and bunches. The most common Kufiya is entirely made with cotton while other kinds are made with silk cotton or gold silk cotton. Males wear it. The cloth is folded diagonally and is placed on the top of the head in order to have both folded sides dropped on the back and the other sides on the forehead. A piece of linen or a turban is wrapped around the head over the Kufiya.” (Dozy, 1845)
This description still holds true today with certain traditional-wearing techniques similar to Dozy’s described imagery.

Conversations with several Arab language specialists including Ghassan Shedid, argue that Dozy’s inference that the word Kufiya was derived from the Latin word Coiffie – Cuffia in Italian, Cofia in Spanish, Coiffe in French) denoting hairdo (Dozy, 1845) is actually false; the opposite being true.

They explained that the Latin European word was actually a derivative of the Arab word due to interactions of merchants and sea trade across the Mediterranean. By referring back to old Arabic manuscripts, they confirmed that the Kufiya took its name from the city of al-Kufa, the first instance of the word appearing there. Origin of the word Kufiya comes from Takawouf Ala al Ra’ess which literally means “gathering on the head” in Arabic. Al-Kufa is said to come from Takawouf wa al Ramel, meaning “gathering of soldiers and/or sand.” Yatakawaf, the verb, or “placing parts over each other” denotes the way it is worn on the head --- gathering of cloth.

Something to further highlight this point and reconfirm the outcome of the debate over the word origin was the following example in etymology --- various textiles word origins can be drawn from areas and regions from that period --- Atabi and Baghdadi come from Baghdad, a derivative of the Latin, Italian and French word Buldaquin or Baldacchino, literally meaning ‘stuff from Baghdad’, and from Baldacco meaning ‘Baghdad’, famous for its brocades. (Al Jader, 1985)

The popularity and widespread of the Kufiya was apparent; it was worn in the inner Arab Gulf states for centuries up until today. Not only was it very practical as an item, used to protect from harsh temperatures and sun, but also its pattern --- derived from ancient Mesopotamia --- was also very geometric and abstract, staying away from older mythologies or pagan religious pictures and un-Islamic representations. It communicated well the values of modesty, simplicity and piety that the Prophet and early Islam preached and that allowed it to be conserved and popularized.

Covering the head was a crucial thing at that time, not only for practical purposes but social and respectable status as well as masculine and social status. (El-Abidi, 1980) Bedouins for centuries had various head cloths, or Amamas, that were worn as turbans or draped on the head and shoulders. The latter usually came accompanied by the ‘iqal. The appearance of the Kufiya was more on the functional level, made with different production techniques and confirming the pattern we know today. Various colors - some with or without patterns - were used: white, yellow, red, black, and green to mention a few corresponding to various areas, tribes and times. The origin of the design, as established, can be drawn from early religious Mesopotamian mythology and yet was actually embraced by and during Islam. The symbolic aspect of the pattern was lost at that time, falling behind the shadow of aesthetics and weaving techniques and most of all overshadowed by the practicality of the function.
The patterns, if any, diverge according to various Arab regions, all-connoting a square head-cloth made from different material, according to wealth, position and climate conditions, and in a multitude of colors. White ones became popular in the Gulf, the black and white pattern prominent in places like Iraq and Syria while the red and white appears in countries like Saudi Arabia.

Due to the nature of Bedouin life as nomads, it was only natural that some of them reached the areas of what are known today as the Levant - Syria, Lebanon, Jordan and Palestine from the inner Arab deserts. Originally from the Arabian Peninsula, the headwear was initially worn by the people considered ‘Arabs’ historically. Since the time of the Arab conquests over 1300 years ago, the Bedouin have been idolized as the true fount of Arab culture – values, language and poetry. It can be deduced and traced, then, that al-Kufiya through its history, is inherently Arab and part of the traditional Arab culture.

2.3 Headwear and the Hatta in Palestine

Traditionally, both men and women were expected to cover their heads. Men were known to remove their headwear only to sleep. By association, the various Palestinian headwear connoted degrees of honor. Corresponding to what men were wearing on the heads, one could tell whether they were townsmen, villagers or Bedouins, creating clear social differentiators until the 1930s. (Weir, 1981) The urban villagers had a soft, small and rounded Tarbush accompanied with a turban or Laffeh made from cotton or silk and usually striped or checked in a variety of colors with a tussled fringe. The Bedouins that arrived from the inner Arab Gulf, the traditional nomads, were really differentiated by their headwear donning the Kufiya and ‘iqal. The kufiya, usually called Hatta in Palestine, was usually worn by the herders. (Khalidi, 1991)

The Kufiya, until that time, had no special connotation or specific symbolism beyond being a class and heritage indicator. It was purely a clothing item that denoted and differentiated according to social class and roots in alignment with Pierre Bourdieu’s Logic of Practice theory, where he emphasizes the importance of the body and practices within the social world. As an acclaimed French sociologist, he envisaged that working-class clothing practices were circumscribed by class and regional cultures. (Bourdieu, 1990) This was true then; the Bedouin, and fallah (peasant) usually was a goat herder living in rural areas. The use of the Kufiya and ‘iqal made sense with his lifestyle and heritage.

The area had been under Ottoman Empire rule and then part of the British colonization up until “the rebellion, which erupted in April of 1936 and ended in the summer of 1939, was the major anti-—colonial insurgency of the century in Palestine – until the current Intifada.” (Swedenburg, 1990) The Hatta was the key strategic weapon used by the resistance forces, composed mainly of peasants, to hide the faces and pass inaperçu, in the face of the big British colonizer. With the spread of the use of the cloth all over, Palestinians stood together in solidarity and protected their own – it was impossible to recognize the fighters from the
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civilians then. The Hatta started carving a path of national collective identity at the expense of eradicating personal identity.

The story is retold – in many versions --- by many Palestinians, young and old, with romanticized nationalistic pride. The dream of the rise from the masses to the elite, from the rural to the urban, of a united nation. The Hatta up until that time and during its use in the 1930s was usually white. No references to the black and white pattern as prominent yet.

Photos leading up to 1948 show the eminence of the white Hatta. (Khalidi, 1991)

In asking an older Palestinian shop owner about the Hatta, he retold a story which happened during the Ottoman era in the beginning of the last century: Palestinians wore the Hatta in order to resist the Turks who forced them to wear Tarbush, especially employees who worked in government institutions, and this Tarbush represents the Turks heritage and it was odd to the people of Palestine, therefore they refused it, and insisted on keeping the Arab heritage and the Arab face of the city, by wearing the black and white Hatta. This story seems to date back to the Arab revolt - referencing the campaign Arab nationalists initiated in Damascus to distinguish between Turks and Arabs on the basis of Tarbush versus what was marketed as Arab headwear, or the Kufiya. (Winklehane, 1988) As a result, the Tarbush and Laffeh went out of fashion. At that time, references confirm that the Hatta in Palestine was white; memory can be selective, contradictory, influenced by later events or idealistic even. It was not only ‘Palestinian’ to wear the Kufiya, but it was also part of the bigger ‘Arab’ movement.

These events assigned a new meaning to the Hatta - representing unity nationalism and revolt. It would become a Palestinian symbol of togetherness, not so much related to any specific pattern, but because of its potential to be used as a mask and hiding faces and personal identity. Anthropologist Donald Pollock is concerned with how masks are able to convey meaning and identity and he aims to clarify how masking is effective in producing and altering social identities. (Pollock, 1995) This is a crucial point to keep in mind when re-looking at and trying to define al-Kafiye. Identifying with a design object that strips away personal identity and recognition for the greater collective belonging - who you are as a person becomes irrelevant in relevance to what you represent as a group.

The 1960s and Yasser Arafat marked the true turning point of the Hatta and its final configuration into a Palestinian visual marker and sign. Arafat adopted the checkered white and black Hatta as his symbol, representing the Palestinian struggle, referencing nationalistic fusion not only internally, but globally. He projected the creation of such a powerful icon because its rich heritage, history and connotation were so powerful, both related to Palestine and Arabs. For the first time, the color, pattern and motif were of more significance than wear. Arafat was known never to appear in public without the Hatta; famous for the story that he used to wrap it around his head to look like the map of Palestine. He actually wore two, the other wrapped around his neck tucked under his shirt almost like a collar – potentially a precursor of the Kufiya as a scarf.
2.4 An Icon is Born- Nationalism, Identity and the Masculine

“The Palestinian nationalist agent, in addition to being masculine and bourgeois-in-the-making, is young and able-bodied - free from the physical vulnerabilities of old age. “He” conceives (of) himself in terms of a group identity unifying him along with the *shabibah* (male youth) with whom he struggles against the occupation.

The self-masking of many Palestinian young men (and some women), when confronting their occupiers (for fear of being identified and punished by the Israelis), contributes to the erasure of their individual identities and the emergence of a strong collective one. The mask itself is usually the Palestinian *Hatta* (the male headscarf or “Kufiyah”), the symbol of Palestinian identity.” (Massad, 2007)

This discourse tinted the *Hatta* with a masculine revolutionary edge, reaffirming the idea that it was traditionally male and emphasizing the need for powerful masculine symbols especially due to the fact that the Palestinians were emasculated by occupation.

Clothing usually helps perpetuate differences in personal identities, but this item does exactly the opposite – historically, traditionally and practically hides the individual giving it the perfect leverage to represent nationalism. In parallel to the definition of Palestinian identity and drawing similar evolutions, the *Hatta* moved into the ‘Bourgeois’ young circles and started being worn as a scarf in the 1970s. Joseph Massad, a Palestinian who grew up in Jordan, recalls a time in the late 1970s, when he was still in college, and his generation started wearing the *Hatta* as a scarf with Navy blue or Khaki military jackets with Velcro and felt and big army boots typical of military fashion. The trend of *Hatta* as a scarf started around then, appropriated as a symbol by the elite male Arab youth. This was a time riled with revolutionary Political activism and when it became an add-on as a symbol in that milieu. Now deployed within a nationalistic narrative, the iconography and graphic symbolism of the *Hatta* started infiltrating Political graffiti, art and posters and postcards, to mention a few from as early as the 60s and 70s.
(Figure 2) Left: Region of Sumeria; Right: In the year 17 Hijrah or 638 A.D. Al Kufa became the historical heir for the city of Heera as the center for the Islamic world.

(Figure 3) Images of the traditional Kufiyas and their patterns

(Figure 4) Images of the traditional Kufiya worn by men in the Arab world today
Prince Gudea of Lagash, whose statue can be found at the Louvre Museum, is said to be the first ruler to have worn the patterned headwear as one piece. He wore it in a turban style.
(Figure 6) Bedouins covering their heads from the sun

(Figure 7) White Kufiya worn by a herder with black “iqal”
(Figure 8) Revolt of 1936, Palestine

(Figure 9) Yasser Arafat wearing the Hatta in his proprietary style
3. Appropriation and the Scarf

As the youth in the Arab world adorned the traditional Hatta as a scarf in support of the Palestinian cause, it was appearing in other places around the world as well in that format. Cultural appropriation is no new concept, especially related to fashion design. As cultures exchange, societies develop, and identities grow, the Kufiya moved from acting as a headpiece to becoming a scarf on a functional level and the Hatta a symbol beyond just function. Becoming the precedent and inspiration to the modern Kafiyeh, the Hatta still holds its grounds.

(Figure 10) Women hiding their faces on the streets using the Kafiyeh
The Hatta giving rise to al-Kafiye narrates a different experience. The core traditional item does exist, is tangible, accessible and meaning---ridden. It has given rise to a multitude of styles and variations with no name consensus not even an umbrella concept of exoticism. Perhaps the most visible common thread is its aesthetic and function, a square patterned scarf.

According to Kader Konuk, Ethnomasquerade implies the duplication of ethnic identity through the “imitation of clothes, appearance, language or other components of culture.” (Kader, 2004) Through Ethnomasquerade, mass culture simultaneously exercises and hides its authority over the colonized Others, Arabs in this case. The idea of Ethnomasquerade is closely related to critical theorist Homi K. Bhabha’s concept of mimicry. (Bhabha, 1984) Bhabha identifies a certain phenomenon of identity construction in the colonial context. Mimicry is an imitation that is “almost, but not quite” the same as the original. Colonial mimicry is the desire for a reconstituted, recognizable Other. Al-Kafiye is a perfect example--adopted as a scarf in the west it was repackaged and sold as a ‘must-have accessory’. Consumer capitalism adapted one of the most challenging propositions of Arab culture and reconstituted it as a consumable item, or tried to, for monetary gain. Today, most kaffiyehs and keffiyeh-adjacent scarves are mass produced in China, even those worn in the Arab world.

3.1 Political Symbol Beyond the Literal

Ideals and politics are fashionable. With time, lack of knowledge and various appropriation, political symbols, groups and individuals have achieved notoriety, at least commercially. The most famed is Che Guevara, whose stylized face portrait by Irish artist Jim Fitzpatrick based on a famous photograph by Alberto Korda, was plastered across an array of mass-produced commercial items – from t-shirts to mugs to bags to flags to posters to bikinis and the list goes on.

There are many sides to every story, but only one that is romanticized through marketing and advertising. The general appeal of Che was his image as the “countercultural revolutionary” and his motivation to fight imperialism as a result of the widespread poverty he witnessed as a young doctor in South America. Conjuring idolized impressions of revolution, rebellion, humanitarianism, and a fight for freedom and justice, he leads on generation after generation of followers around the globe. Nicknamed the “Butcher of La Cabana” after his part in overseeing post-revolution executions in Havana, this side of Che is not publicized. Numerous Cuban exiles even insist that he developed into a ruthless killer and Fidel Castro’s right hand before his death. (Humberto, 2007) In critic and designer Steve Heller’s book The Swastika: Symbol Beyond Redemption, he tells the story of the most global negative icon ever. That did not stop “stupid applications of the Swastika today – like in 2006 when Hong Kong fashion chain, IZZUE, produced a range of T-shirts and pants with Nazi symbols printed on them.” (Heller, 2008) Shock effect, lack of knowledge or ignorance leading to misappropriation?Al-Kafiye mirrors the Che symbol in some aspect as it rose to
represent non-conformism and embodied revolution across a range of causes – anti-war, pro-green, feminist protest, black movements or anti-globalization. Quick to be spotted in rallies around the world, Kafiyes were draped around shoulders and grew to become accessories and accompaniments to causes. Palestinians intrinsically link connotations between the Hatta and Che logo. Many proudly claim the two “go hand-in-hand.” Youmna K., an American Palestinian, explains how the logo is present all over Palestine, “Che drawings can be seen on many walls here, there is even a famous picture of Che wearing the Hatta. We feel that we stand for similar issues. We want justice and change just like him.”

Someone else who sought change was Barack Obama, who according to critic Naomi Klein is “the first US president who is also a superbrand.” She goes on further exploring the idea of “the transformative political movements from which he has borrowed so much (the pop-art posters from Che, his cadence from King, his “Yes We Can!” slogan from the migrant farmworkers – si se puede)” are the foundation of commercialized globalization, the roots of mainstream political mainstream. (Klein, 2010)

Al-Kafiye might have similarities in uses and ideology with strong political markers but it remains an item, object, icon. It was always an object, not objectified. Arafat helped ground a new narrative for the Hatta; he never replaced it. There is no real face behind the cloth but the ideal concept of a culture and an ideology. There is no one to worship, love, follow or hate. It is a means rather than a personification. That is where its paradox lies, and perhaps part of its success and popularity. It is universal in its design, material and embodiment of revolution. As timely today as ever.

3.2 From Street Cred to Style on the Street

“I speak through my clothes” Umberto Eco

Media theorist and sociologist Dick Hebdige makes a case in his book, Subculture: The Meaning of Style, that the diverse subcultures in Britain of the 50s, 60s, and 70s embodied the volatility of cultural objects. (Hebdige, 2008) Subcultures – like Mods, Punks, or Skinheads – appropriate symbols, items and music from ethnically disparate groups to distinguish themselves from their original culture. Avant-garde significance of a subculture relies on the extent of objects, commodities, and signs from one culture are drastically sabotaged or altered in another. David Howes explains that mass culture and “businesses often seek to capitalize on the subversive allure of subcultures in search of ‘Cool’, which remains valuable in the selling of any product.” (Howes, 1996) This circular process provides a constant stream of styles, which may be commercially adopted as subcultures evolve or die and its members adopt new alien non-mainstream styles.

“I spotted the black-and-white Kufiya way back in the 80s in London. It was worn by a group of punks and they just looked dangerous. I guess it represented a powerful statement then. Now I see it all over in bright colors, it seems more hipster.” Mo Sadek, a Lebano-Iraqi creative director, has been travelling from the Middle East to London on a yearly basis for
more than 20 years. “It has been a crazy phenomenon to observe. Here is an item that my grandmother used to wear with pride and now it is around necks of Western teens. They don’t even know where it comes from and what it really symbolizes. They just want to look revolutionary.”

If the *Kufiya* did manage to infiltrate Western (US and European) Subculture at some point in the 70s and 80s, there is no question that in the last decade, in its colorful variations, it has managed to penetrate the mainstream market. It could be bought on street corners all around New York and in Portobello market, St Marks and Camden in London and sold at stores like Urban Outfitters and TopShop.

### 3.3 Catwalk and High Fashion

Infiltrating the world of high fashion and appearing on catwalks, the *Kafiye* was appropriated and redesigned by top notch Fashion designers both in the West and then re-appropriated in the Arab world. Although China is currently the leading mass manufacturer of the fashion scarves today, some hand-woven bespoke iterations of the *Kafiye* can be bought for thousands of dollars today.

The most acclaimed appearance was when French fashion designer Nicholas Ghesquiere used the Kafiye in his Fall 2007 fashion line for Balenciaga. He utilized multiethnic fabric references—Eastern European folk embroideries and African, Peruvian, Mongolian, and Balinese patterns in his show. The scarf was a reworked version of the *Hatta* in silk detailed with a gold fringe of coins. The scarf retailed for around 570 British pounds.

Raf Simons, controversial Belgian designer, featured it in his menswear Spring Summer 2002 show, inspired from riots, confusion and signs of silent protest expressed by “the post-millennium youth.” White oversized slogan filled t-shirts were paired with patched hooded jumpers while *Kafiyes* concealed their faces. Other notable references include a 2010 collection by Givenchy, a 2015 line by Chanel and an ongoing fashion collection by Danish designer Cecile Copenhagen.
(Figure 10) Chinese-made Kafiye style scarves on the streets of Manhattan close to Astor Place
H.A. Malak

(Figure 11) Kafiyes in protests all around the world

(Figure 12) Hatta patterns appearing in Vogue in 1965
Al-Kafiye: A Symbol of Change

(Figure 13) Appearing in American popular culture Left: Sarah Jessica Parker on an episode of Sex and the City; Right: Recommended scarf style in a magazine

(Figure 14) Left: Che and the hatta by Carlos Latuff; Right: Kafiye style colored scarves in Greenwich Village Manhattan 2012
(Figure 14) Nicolas Guesquiere for Balenciaga runway in 2017
Al-Kafiye: A Symbol of Change

(Figure 15) Jeremy Scott Runway, S/S 2013

(Figure 16) ThreeAsfour Runway, Insalaam Inshalom, 2012
(Figure 17) Chanel Cruise Collection Runway, 2015

(Figure 18) Cecile Copenhagen, 2020 collection
(Figure 19) Givenchy Advertisement, S/S 2010

Al-Kafiye today is the face of the new young contemporary revolutionary visualized from the Arab world- from Arab Spring to protests and revolts that are emerging in waves all over the world. Just like this personification, it may have moments of identity crisis and external influences, but it always is connected to its roots and heritage. It may be appropriated, stereotyped and attacked at times and yet to be able to move forward and maintain its core, it needs to set its new rules. Reclaiming al-Kafiye is all about knowledge, education and discourse. Beyond a mere object, al-Kafiye represents a whole interconnected visual phenomenon, one that keeps on growing and morphing with political, economic and social influences. It denotes a wave of Arab revolt that is universal.

Creative dialogue is just one of the possibilities for this indisputable powerful symbol; we need to ensure its evolution through education and conversation. Its influence and ‘Arabness’ is key and yet the spread and understanding of these core elements are what make it an icon. In a society where consumption has become disposable, and items are being thrown out, al-Kafiye has managed to still infiltrate various levels of culture and prove it is not going anywhere. The key to its future is in its preservation– where it comes from and what that means to open up an array of possibilities on where it can go. It’s time for a new narrative for Arabs, to return to the original definition of this symbol that could not silence its message of the fight for hope.

5.1 Drawing the Line: When does a Kafiye stop being a Kafiye?

A Kafiye stops being a Kafiye when the misappropriation becomes louder than its message. It is important to preserve its cultural heritage and cut through the confusion and noise. There are many experts in the Arab world yet little connection, interaction and information flow between the various countries and their information, both regionally and globally.

Preserving, studying and contextualizing cultural designs is crucial. Jean Baudrillard said, “Only an analysis that emphasizes the logic of symbolic obligation can make sense of this confrontation between the global and the singular. To understand the hatred of the rest of the world against the West, perspectives must be reversed. The hatred of non-Western people is not based on the fact that the West stole everything from them and never gave anything back. Rather, it is based on the fact that they received everything but were never allowed to give anything back. This hatred is not caused by dispossession or exploitation, but rather by humiliation.” Al-Kafiye offers that chance, if anyone is willing to take it.
(Figure 20) Series of postcards developed by the author in collaboration with designer Tarek Atrissi to explore identity through the different faces of the Kafiye. These postcards were part of an exhibition Beyond the Cloth: The Kafiye Project curated by the author.
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Hala Abdel Malak is design scholar, curator, educator and strategist. Born in Beirut during the civil war, she grew up, worked, and studied in Lebanon, USA, Canada, UAE, Holland, UK, Morocco and France. Hala’s multicultural background is reflected in her versatile diverse approach and interest in culture, learning, knowledge and expansion of consciousness where she has continuously transcended stereotypes and challenged the status quo. Her interdisciplinary experience combines management, strategy, content, curation, leadership, research and communication with design in the for-profit and non-profit worlds, as well as research and education across four continents. Hala is an avid art, design, nature and music lover with a passion for social change, cultural identity exploration and the power of ideas through creativity. Hala is an Assistant Professor of Design Strategies and Director of the Strategic Design and Management BBA program at Parsons School of Design in New York.

Acknowledgements:

I would like to thank first and foremost my parents George and Yvette Abdel Malak for their extraordinary belief in me and unrelenting support in every
endeavour I have embarked on over the years. Especially my father for the long nights of support in translating old texts from Arabic.
I was lucky to stumble upon the great mind of Ted Swedenburg whose input was invaluable to this work, so thank you.
A shout out to my many colleagues and friends who have heard continuous discussions and presentations about the Kafiye and the Arab World and have always listened intently and given me great constructive comments.
Thank you to every single person who helped me on my journey from librarians to journalists to historians to designers and many others. I can’t express enough deep gratitude towards everyone who took time off from their busy schedule to talk to me, answer my emails and get interviewed.
Lastly, thank you to Paola Antonelli, Michelle Millar Fischer and Alexandra Midal for including my work on the Kafiye in the MOMA exhibition, abecedarium and book- *Items: Is Fashion Modern?*
Beyondstories. People Narrative makes a Territory

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Abstract | Beyondstories is a system to rewrite the historical and becoming identity of a territory from an internal point of view, through inhabitants' experiences, voices and anecdotes. Urban stratification is revealed by translating recorded voices of citizens - the physical "human data" - through a digital visual grammar. Stories mixed with history come back to the context with cultural narrative paths that use architecture as a substrate for immersive technology.

KEYWORDS | SYSTEMIC DESIGN, COMPLEXITY STRATEGY, DIGITAL CULTURE HERITAGE, IDENTITY, TERRITORY, SELF-REPRESENTATION, NARRATIVE, LANGUAGE, GRAMMAR, CONTENT ANALYSIS, COMBINATORY, AUGMENTED REALITY, DATABASE, VOICES, AESTHETICS, EXPRESSION, VISUAL
1. Introduction

In our research, we started from the conditions of territories and the relationship between people and territories in the age of complexity. Urban areas are rapidly changing due to gentrification, globalization, and mass tourism phenomena. In a lot of cities, especially in Mediterranean, identity “is not perceived as an alive and shared feeling” (Casalini, 2016) anymore.

“Polis is a web of relations” (Lledò, 2019) and identity is related to the people that live a specific territory and to the way they connect and communicate with each other. Territory is made of language. In a complex system, “to know is always a result of a dialogic combination.” (Morin, 2019). In semiology, “umwelt” is our subjective universe, a perceptive environment of my surroundings. “When two umwelten interact, this creates a semiosphere” (Semiosfera, 2019), a habitat where it is possible to reach common sense from different expressions. Territory is always an interaction between languages. We give meaning to what we perceive thanks to the encounter with the other.

Encounter is a bedrock for the development of a community. We feel belonging to our territory if we live together with other people and we socially identify with our habitat. The endurance of our relational web depends on the empathy that we feel for our neighbours. In the past, myths and classical literature let people be able to recognize neighbours’ feelings. Narrative archetypes worked as other “recognition figures” (Galimberti, 2019).

Nowadays, we lost some of these narrations and we do not socially identify with each other. In order to rebuild this relationship, we need to produce new narratives about territories or to find a way to revitalize existing ones. Our design strategy therefore identified narrative as a method of regenerating urban macro and micro territories and stimulating the recovery and maintenance of identity belonging.

Narration is the act of telling a story, where the language is a medium. Narrative is rarely investigated as a way to spread a new language. In our research, we studied how narrative can develop territory belonging and diffuse a sense of recognition in a community. In a story timeline, normally there is a transformation, a passage from a state to another. The sequential nature of narrative could be a way to express identity, intangible entity in perpetual change. People are “stories-holders” (Marcolini, 2019), so territory identity can be expressed by stories of people collected within the context.

We focused on how to promote human life stories, morphing a stratified maze of data in a connected network. In the 4th Industrial Revolution era, we view big data management as a chance to weave a network of stories, people and places. Our goal was to structure a solid system that could inject some life back into cultural heritage, involving people in terms of imagination and civic participation and supporting the local economies.

The main purpose of designing a system is to design a process that could proactively involves people and fits across time and in different spaces, as a sustainable format.
Following a systemic approach, we gave birth to a grammar structured in acquisitive, compositional and compilative logics held together by a team of experts and relationships that provides cyclical interventions on the context. The results are shown up in the form of concepts able to translate the grammar and logics designed. Systemic design was used as a method capable of giving life to a project in which the technological component (digital or material whatever it is) is always accompanied by a strong human presence. Culture cannot be separated from its context and from the language of those who live the context and experience culture. Beyondstories is a project that shows how expressions from the contexts can be a driving element of the cultural process.

*Figure 1. Beyondstories: Systemic map that shows actors, logics and the circular process from context to context.*

*Figure 2. Beyondstories: Parameter Emotion. The poles from which the infinite emotional nuances spring up concern the perceived sensation (vital-nefarious) and the temporal connotation (present-expected) of emotions.*
2. Beyondstories: A Narrative System

Beyondstories is a framework to rewrite the historical and becoming identity of a territory from an internal point of view, through inhabitants’ experiences, voices and anecdotes. Urban stratification is revealed by translating the physical "human data" through a digital grammar, coming back to the context with narrative paths that can be experienced by audience through immersive channels (e.g. nowadays geo-located podcast, videomapping or augmented reality). Narratives are set up starting from a database composed of the stories told by the inhabitants of the context, collected, processed and translated according to a set of design logics.

Each people’ specific stories are modules brought together in a composed collective history. As a language, every single part interacts with each other and creates new elements. The recurring and shared elements are highlighted, maintaining the heterogeneity of the singularities. The entire process must be iterative: the onward addition of new points of view will shape an open story. New looks will produce new meanings, keep track and take care of emerging behaviours.

Finally, the composed narratives are re-proposed to the inhabitants through physical-digital channels: a network of paths that can be experienced through augmented reality and an interactive geo-located podcast platform, an open use of the database to the public.

Figure 3. Beyondstories: Putting keyframes on recording audio isolates a micro-story from the entire interview.
3. Beyondstories: Territories Acquisition Through Stories

The distinctive character of a territorial context lies in its human heritage, a community that must be preserved, enhanced and narrated, in order to bequeath its peculiarities and keep its identity dynamic. Due to its nature, a context should be depicted mixing history (universal and verified facts) and stories (particular and specific anecdotes).

Beyondstories makes facts, events and people not historicized talk, enhancing the peculiarities that emerged from historiographic research and freeing the canonical tourist routes from mass crowding. The cultural use of a context would thus extend to any stratified street, square and corner, without remaining closed in the habitual monuments and points of interest.

As a first step of our research process, we focused on specific areas and topics to be explored. After that, we established that stories should be searched using a field research method, looking for direct expressions from the context and about the context itself. In the end, we looked for patterns and recurring elements from the collected data that can become parameters of a wide and structured model.

3.1 Focused field research

The Beyondstories system starts with a co-design process, in which designers have roles as mediators. Designers map the urban context chosen, in order to highlight topics and places where the research will be focused on.

Results are discussed with experts of various disciplines concerning a relationship with territory and ethnography. Art historians will help in rebuilding the historical urbanistic context, anthropologists will give advice on how to approach the context inhabitants, community managers will be the spokesman for the needs and suggestions of the neighbourhood committees or civic associations.

From this collective briefing designers draw an interview canvas out that will be assigned to the story-finders, figures who will be in charge of seeking stories through research sessions on the field. The stories from the context will be acquired as audio recorded material, through narrative interviews sessions organized in the research context.

The narrative interview is a methodology theorized by Robert Atkinson (Atkinson, 2002) based on an empathic ascetic process that establishes ever deeper levels of confidentiality with the interlocutor. Every single story is the result of a relationship that is established between the interviewer and the interviewee, and takes shape between a smile, a commotion and any other emotional nuance.

We tested narrative interviews on field, acting as story-finders in our field research prototype. Referring to the artistic design philosophy of J.M. Basquiat called Boom for real, we introduce ourselves to the people interviewed as a research group named Boom for.
Rome. As Basquiat breathed and absorbed signs, smells and sounds of his city in order to express them in his artworks, we tried to enter the Roman urban substrates in order to absorb stories, emotions and cultures.

The prototype Boom for Rome was organized in several interviews sessions that have been collected in places in Rome that share a high grade of sociability, current or in decline, and historical stratification. Our choices fell on the social and habitative center Spin Time Labs in Via Santa Croce in Gerusalemme, on the area of Rione Ponte and on the areas surrounding Piazza Navona.

The questions of the interviews were designed to encourage people to tell stories about their relationship with the territory across the timeline past / present / future. As an example, we asked “Why are you here?”, “How was this place twenty years ago?”, “What does this place remind you of?”, “What would you change or add to this place?”.

Each person interviewed shared precious stories and anecdotes, which contributed to create more specific and focused questions. We worked on how to interview. Every time that we came back on field, we fixed our interview process, and we found recurring topics and patterns. Analysing the results of empirical experience, we have thus designed guidelines that can be applied to different acquisition tools and models

3.2 Qualitative voice recognition

Nowadays, automatic speech-to-text recognition and manual unwinding are the main ways to get a transcription from a recorded audio. Speech-to-text recognition is fast and increasingly precise, but it has limits in the restitution of a narrative content, not providing indications in emotional terms. The unwinding allows a more qualitative analysis of a text/audio, but it is a slow and expensive process.

In order to provide technological support to the physical action of the story-finder, we designed a model divided into steps, with the aim of obtaining qualitative and narrative data from voice recognition.

1. During the interview, the story-finder puts keyframes of fixed duration (2-3 minutes). The keyframes are parts of the entire story that become autonomous micro-stories, with narrative value and - if possible - a self-concluding sense. Each micro-story is an agglomeration of the words that composed it;

2. Each micro-story is analyzed by voice recognition, enhanced by the addition of three parameters: Time, Narrator and Emotion.

   • **Time**: Compared to the time x of the interview, what time y does the narration refer to? The “present” axis is not at the centre because - based on field research results - it emerged that memories are prevalent within an interview;

   • **Narrator**: Does the person talk about himself (selfdiegetic), his context (homodiegetic) or with an observer's eye (heterodiegetic)?
• **Emotion:** Towards which axes does the emotional substrate of the narrative tend? Emotions are shown as configurational situations, resonances of human behaviour, not polarized and with a nuanced nature. The poles from which the infinite emotional nuances spring up concern the perceived sensation (vital-nefarious) and the temporal connotation (present-expected) of emotions. Time and narrator parameters come from Genette’s studies on narratology ("Gerard Genette", 2019). The emotion parameter is a union between Lisa Feldman Barrett’s neuroscientific studies (Della Rocca, 2019) and Umberto Galimberti’s philosophical analysis (Galimberti, 2019).

3. Adding the three parameters, every word of each micro-story is categorized and expanded semantically. Each word will have a wide range of connections with other words and at the same time a more specific connotation depending on the parameter. All the micro-stories, divided by topic and categorized by parameters, create the Beyondstories database.

*Figure 4. Beyondstories: Semantic widening. Each word will have a wide range of connections with other words and at the same time a more specific connotation depending on the parameter.*
3.3 Visual code

To deal with the amount of information contained within a single audio file, it was necessary to develop a visual code that took into account all the acquisition parameters and easily concentrated them in a graphic display. A micro-story is represented as a cloud of words. The single word is represented by a long stroke and a short stroke. The amplitude of the long stroke is determined by the semantic connections of the word, while its transparency is dictated by the temporal parameter (the more a word is linked to a past tense, the more transparent it will be).

The morphology of the short stroke communicates the type of narrator: square if selfdiegetic, circle if homodiegetic, rhombus if heterodiegetic. The gradient of the short stroke transmits the emotion parameter: gradient from blue to green refers to the present-expected axis, the gradient from magenta to orange refers to the vital-nefarious axis.

To ensure a rectangular morphology and the slender shape of the module, the words are arranged on six vertical lines with a fixed horizontal line-spacing. The short stroke is located on the right of the long stroke. The distance between short and long strokes and between individual modules is constant. The final configuration of each micro-story is a pattern of lines and points that resembles a cloud, a slipstream.

Figure 5. Beyondstories: Each micro-story is an agglomeration of the words that composed it. Through the visual code, the final configuration of each micro-story is a pattern of lines and points that resembles a cloud, a slipstream.
3.4 A narrative database

At the end of the acquisition phase, each micro-story will be composed of parameterized and semantically expanded words. Collecting an unlimited number of stories, a narrative database comes to light. “Database and narrative are natural enemies” (Manovich, 2002), but they are joined together by the language as an “archive of elements from which people assemble the linear utterances of speech” (Lupton, 2015). Micro-stories so become the elements of the new language of the territories.

From the elements, to the speech. By transitive property, the connections between words also become connections between micro-stories. Database starts being not only a way to gather parameterized fragments, but also a way to easily join a various number of them united by the same topic in a wider screenplay: the “beyond-story”. The continuous update of fragments makes the narrative combinations infinite.

Facing an indefinite number of contents coming from reality, Joyce and Woolf's a-synchronous narrative (Gorlier, 2019) and the combinatorial narrative studies of Calvino and OuLiPo (Martines, 2019) inspired us on how to translate a multiplicity into a composite narrative flow with meaning.

The next step is to move from an intangible database to a concrete experience. A beyond-story becomes a physical narrative path. The connections between micro-stories become connections between places. Urban aesthetics supported by a non-invasive technological intervention becomes the ideal medium for narrating stories of the context.

![Figure 6. Beyondstories: In the database, connections between words also become connections between micro-stories.](image)
4. Composition: Stories through Space

Considering territory as an open narrative entity, we faced how stories could remain and contribute to amplify memory context itself. Generally, memory has an organic and configurational nature (Yates, 1972): memories set up and fixed on places where they took origin (Yates, 1972). In the same way, composed narrations should return to the place from which originated.

Coming from different voices and times, various stories coexist in the same place. That place becomes a heterotopia, a “different place” (Foucault, 2011) where pairs of opposites - e.g. inside and outside, real and imaginary - coexist within a “habitable threshold” (Moca, 2019). The threshold takes on a dual and ambiguous nature, a conscious dream *reverie* (Moca, 2019). Enhancing beauty and potentiality of urban thresholds as architectural discontinuity and patterns, cultural heritage pass through an augmented reality itinerary in stages.

In the composition phase we focused on space. Every beyond-story must be translated from audio to visual language and then laid down on reality. We built a grammar, an abacus to give a set of possible narrative configuration of the space, to let the architecture talk. Stories become markers, digital-physical checkpoint that can be experienced along the urban context through an audio-visual immersive path.

*Figure 7. Beyondstories: Stories become markers, digital-physical checkpoint that can be experienced along the urban context through an audio-visual immersive path.*
4.1 Urban Narrative Abacus

A composed narration needs a dynamic grammar, whose elements can be combined according to flexible rules of narrative composition. The Urban Narrative Abacus is a set of possible compilations of the space available to the digital artists who will have to design the augmented reality visual experience.

In designing this new grammar, we took into account the pre-existing urban and architectural scheme and we looked for analogies between physical space and narrative cases recurring in a narrative. Heterotopias have been the medium for imagining the kind of interaction between content, spectator and background. As an additional level of translation, we assigned rhetorical figures on the level of meaning to each element of the abacus.

The digital artists associate the contents of each micro-story with an element of the abacus and creates 360° visual compositions for every checkpoint of the entire beyond-story. The digital artist will be supported by a developer for the final implementation phase of the process. Depending on the main parameter of the narrative, digital artists can treat stories with different styles corresponding to different tones of voice. As in Queneau’s Exercises de style (Queneau, 1983), each path can be narrated with a different narrative genre.

![Figure 8](image.png)

*Figure 8. Beyondstories: The Urban Narrative Abacus is a set of possible compilations of the space available to the digital artists who will have to design the augmented reality visual experience.*
Figure 9. Beyondstories: Resonant Echo, one of the Urban Narrative Abacus elements.

Figure 10. Beyondstories: The eleven elements of Urban Narrative Abacus.
4.2 Augmented reality experience

The first practical application of our system is an augmented reality experience proposed to the public through thematic itineraries in the urban area. The path winds through the physical checkpoints of the territory where the narrative development of the individual micro-stories will take place.

We faced nowadays not invasive technologies and chose augmented reality as the best one to make people aware of the stratified context where they live using themselves contributes.

Stories are composed and overlay to reality starting from the same motifs grabbed in the gathering of stories. Spectators discover a new context that evokes futures, echoes memories and encourages an imaginative approach to everyday life. Ordinary becomes extraordinary through sensorial assonance (Winkowski, 2019), showing how behind data there are real human stories (Lupi, 2017).

![Figure 11. Beyondstories: Translation from abacus to augmented reality experience.](image)

The street becomes a museum, a vibrant place of life and anecdotes, in line with the principles proposed by the theory of eco-museums (“Ecomuseo”, 2019). As in an eco-museum, cultural experience is proposed in the same context where the stories are born.

Technology allows us to let the spectators live first-hand the experience in an audiovisual synaesthetic sphere. During the experience, visitors are attracted to multiple points of interest, free to evolve their own path freely.
Every micro-story is related to a visual slipstream. Slipstream move on the adjacent planar surfaces: flooring, walls, facades. The direction of the slipstreams is the micro-story checkpoint, so visitors can follow them during their walk. The closer the spectators get to the checkpoint, the more concentrated and denser the slipstream becomes.

Acoustically, the slipstreams drag pieces of the audio of the respective micro-story, disturbed by gradually less intense interference signals when spectators approach checkpoint. A plaque with information about micro-story appears once spectators arrive.

After enjoying the experience, visitors could be able to live again a context by listening to the beyond-stories as podcasts. The stories database can be used independently through an interactive sound composition platform. The platform allows to keep track of the configurations proposed by users and their feedback can give important advises for organizing the next acquisition session.

From context to context, through digital and physical channels, the main aim of the system is to promote the birth of a cyclic ecosystem.
Figure 13. Beyondstories: A frame from the augmented reality experience.

Figure 14. Beyondstories: From the same story is possible to change tone of voice. Same topic and voices, different style.
5. Scenarios

We believe that this approach to narrative could open to different scenarios.

We aim living as part of cultural heritage, in order to contrast massive tourism with quality cultural routes. Furthermore, we think that a territory should self-represents itself to trigger a renovated sense of belonging and civic participation and to give life to a support economy for local activities. Immersion in reality through stories provokes empathy for the context. Empathy stimulates people to make their own contribution, to explore other micro-territories within the macro-territory and to participate civically.

These could be the next steps to carry out research in terms of feasibility tests and interaction design prototypes:

- Design of physical devices and interfaces that translate the acquisition and composition logics in terms of user experience;
- Introduction of interactive logics during the augmented reality experience, providing objects capable of directing and modifying the stories path;
- Qualitative approach to the translation of stories in another language, in order to maintain dialect and the emotional charge that only an actor figure could faithfully reproduce.

The branches of the system open up to other possible longer-term scenarios, regarding tourism, civic engagement and circular economy.

5.1 Tourism

The new international trends are moving towards the search for emotional and experiential tourism. Despite the tourist is looking for authenticity, in Italian cities mass tourism is concentrated in a few places compared to the potential that our territory would offer. Self-representation according to the Beyondstories model can become a direct channel for presenting a territory, spreading the boundaries of cultural heritage.

Looking also at the representation of the territory and reiterating the concept of identity as a changing entity, the design of a coordinated image could be cyclically supported by a preliminary phase of coordinated investigation of the territory to be narrated. People's stories would become raw materials to express the real nature of a context to those who discover and explore it with an external eye.

5.2 Civic engagement

For some years, many cities (above all Bologna with the Urban Innovation Foundation and Barcelona with Decidim) have been equipping themselves offline and online platforms to mediate the relationship between citizens and the public administration. Cities are intended as a common good to take care together. Citizens are asked to be active and say their
thoughts participating to events or taking part to co-design workshops. Community managers are important figures in this process: they have the task of stimulating, collecting and preserving shared ideas.

The future of the territories is also at the core of universities’ projects, particularly in the faculties of architecture and design. Universities have always carried out research on feasible ways of intervening in a context to improve their critical issues. Students start from a research about the context and then they are free to design with imagination.

Beyondstories can assume a role of narrative support to universities and coach managers, through representing projects and proposals hitherto fixed on paper or communicated through photorealistic rendering.

5.3 Circular economy

A territory is the result of exchanges and relationships that occur within it. The sustainability of a territory passes through its economic flows. Local actors produce goods, internal and especially external actors bring currency. Today a lot of historical commercial activities are closing due to the spread of standardized gadgets and the research for low quality souvenirs.

Marketing 4.0 theory said that the future economic scenario will shift the focus from value to relationships (Kotler, 2019). Any company should seize the addition of external factors as an opportunity to expand and grow its pre-existing vision and narrative.

Beyondstories could be an active part in the development of a support economy to protect the general economy of the context. While narrations are opened, it is possible to extrapolate characters, anecdotes, figures and situations from them: iconic material that lends itself to be attached to any product sector. The historic craft activities could find a quality circuit, promotion channel and source of collaboration in the development of representative memory objects of the territory.

6. Conclusion

The narration of a place has a threefold goal across the time: narrate the past in order to maintain, collect and create memory; narrate the present to inform and therefore take care; narrate the future to observe, imagine and then propose (or simply dream).

The construction of the narrative must be facilitated with a grammar that provides guidelines, constraints and ideas for the participation in the narration. We need to connect the languages of different actors and different cultures and to create a positive experience that encourages users to constantly and spontaneous sharing.

A new grammar should also enable people to "develop the ability to react creatively to the visible" (Rodari, 1972) to create an open narrative of the territory.
We want to trigger collaborative and participatory storytelling processes with the aim of developing the shared identity of an environment-territory.

Design is medium for maintaining heterogeneity and building new experiences to identify oneself as part of a community. The designers must take on the role of "architects of relationships" (Bottà, 2019) and arrange the exchange from “me” to “us” and from “us” to “others”. Beyondstories system spreads the practice of mixing, connecting and uniting, creating a common sense that starts from ambiguity, diversity and differences.

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BeyondStories. People Narrative makes a Territory


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**Acknowledgements:** Lorenzo Ceccotti, Professor of Video Animations at ISIAROMADESIGN. Federico Russotto, Directing Student at CSC - Centro Sperimentale di Cinematografia di Roma. Giovanni Abbatapalo, Researcher and Coordinator for La Scuola Open Source in Bari. Daniele De Luca, Designer with BA in Industrial Design at ISIAROMADESIGN and Art History Student at La Sapienza Università di Roma. Andrea Di Mattia, Architect with MA in Architecture at La Sapienza Università di Roma.
Brand in Product. The language of the brand to govern complexity

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Abstract | Brand in Product is a project analysis and practice method aimed at brand-oriented typological innovation, useful to conceive new products and services integrated in the company’s brand equity. It is a systemic methodology, new and experimental, developed a few years ago with rather original and positive results; its theoretical and operational foundations are inspired by the best brand experiences which were able to elevate different moments of their action, by synergically integrating roles and competences previously regarded as separate by the various brand’s divisions.

KEYWORDS | BRAND, PRODUCT, COMMUNICATION, DESIGN
1. Introduction

In the fluid and ever-changing modernity, we are submerged in, products can relatively easily be reproduced by a competitor, yet the uniqueness of the brand continues to ensure quality to those who own it, update it, and feed it with consistence and foresight. And while products are quickly outdated, successful brands continue to come out on top against a backdrop of ever-increasing competition.

In a world where primary material needs are given as already met, brands continue to speak to the subconscious desire for identity and self-assertion which compels individuals to establish an intimate, empathic relationship with the products they interact with.

Brands work toward creating a mental space where tangible and concrete factors fuse with intangible and value-related elements, to establish a connection with consumers’ deeper needs by speaking to the totality of their senses.

Competitors can imitate a brand’s products, colours, shapes, or fonts, but no one can appropriate the culture behind a brand identity, which is the result of stories, relationships, visions, and aspirations. Content and attitudes before shapes and functions.

As Wolf Olins (1) reminds us, the intangible values of the brand are often much greater than the tangible assets of the companies that own them.

Only a strong and recognizable brand can express its own “language”, keep its share of market, and expand its scope to new commodity sectors, all the while heightening its iconic, symbolic and value-related power.

The brand equity is “that set of distinctive and distinguishing values that allow the brand to enter the market and compete in it” (2), a mix of recognizability and mental associations, that is, the apparently intangible capital able to create fidelity and recognizability in its own public.

This value system is not born by chance but is the result of a complex layering of messages that a company conveys over the years through its products, communication campaigns, behaviour codes, and all the verbal and formal expressions that circulate via a wide range of different channels.

The brand must be regarded as a living organism, able to evolve with time and adapt to transformations. “The brand as a person” (2) states Jacques Séguéla, with its own face, posture, facial features, biography, age, culture, language and lifestyle.

However, what is at the centre of the emotional and value-fraught relationship between a brand and its public are the products themselves. It is through them that a brand defines itself and conveys its philosophy and its approach to the world of its clients.

Products are like mirrors, reflecting our images to the external world and projecting, more or less consciously, the set of identity values we relate to and identify with.
To govern contemporary complexity, companies must adopt a strategic and all-round vision to manage their brands. The chosen strategy must necessarily encompass all areas of design, in view of interconnecting and enhancing all the elements that make up the brand. Every project must therefore work toward a bigger, all-encompassing vision, like a jigsaw piece in a wider path that foreshadows the bigger picture.

Brand in Product is a project analysis and practice method aimed at brand-oriented typological innovation, useful to conceive new products and services integrated in the company’s brand equity. It is a systemic methodology, new and experimental, developed a few years ago with rather original and positive results; its theoretical and operational foundations are inspired by the best brand experiences which were able to elevate different moments of their action, by synergically integrating roles and competences previously regarded as separate by the various brand’s divisions.

As an example, we will analyse a number of case studies, in all of which the success factors of a company were determined by its strategic vision of connection between its products and its communication with the public. In all these cases, we can find strong, clear, inimitable and immediately recognisable insights from generations of consumers over the years. The brand defied the passing of time and social, cultural, technological and financial transformations. It came out undamaged and by contextualising new landscapes it was able to keep hold of its leadership in a sea of fierce competition.

2. Race to Infinity

The first case study to look at is the brand Nike, a company founded in 1972 by Phil Knight in a commodity sector at that time dominated by Adidas.

Around the mid-70s, an obsession with health and jogging started sweeping the USA and Nike was able to embody those new societal values thanks to a thorough research into the development of running shoes designed for a new generation of running enthusiasts, both amateurs and professionals.

According to Nike’s philosophy, a better technology would result in a better performance and by creating an innovative product, original also in appearance, Nike gained the respect of running devotees.

In its race to beat Adidas, Nike heavily employed celebrity endorsements, not only to gain credibility in the sports world, but also to convey emotive and self-expression messages. Indeed, harnessing the emotional side of sports has been key to the mystique of Nike since its early days. The kind of athletes chosen by the brand have always had a strong profile, far from model athletes, sharp-edged, aggressive and independent, people with strong characters who first and foremost wanted to be themselves. The great basketball player Michael Jordan, who perfectly symbolised the brand, was chosen as the face for the Air Jordan sneaker, designed with the air cushioning technology -air bubbles capsuled in the
sole-, and invented by a NASA engineer. To better show the technology, the sneaker’s sole was designed with a see-through side, so that innovation could happily marry marketing strategy. The functional advantage of air cushioning was then reproduced by competitors, but the perceived value of the Air Max line has remained unchanged since 1987.

Nike’s brand strategy was able to single out deep-seated desires in its target consumers, through strong, aggressive, almost provocative language and an imagery that featured everyday heroism, spirit of sacrifice and self-reflection.

The “Just Do It” campaign launched in 1988 has produced one of the most successful ad slogans of all time and emblematically reflects the brand’s philosophy. Nike’s marketing strategy has been renewed and updated over the years, adapted and adjusted but never distorted, increasing its communicative power, and its ultimate manifestation took place on the thirtieth anniversary of the brand with an ad that faced a lot of controversy. It featured National Football League quarterback Colin Kaepernick, who was marginalised from professional football for kneeling during the national anthem as a form of protest against racial injustice and systematic oppression of the Afro-American community.

The brand has continuously innovated its brand communication by creating new dynamics and marketing platforms, such as the use of big urban spaces, huge billboards and gigantic graffiti realised by street artists and depicting the sponsor celebrities, thus easing into the fabric of city life and creating icons of our times.

Nike’s impact was also remarkable in the retail world, with the opening of Nike Towns in 1992, flagship stores whose size had never before been seen.

Far from simply selling Nike products, these huge spaces were tasked with communicating the brand’s essence and transmitting the energy and philosophy of the “Just Do It” motto through an unforgettable buying experience, designed to be immersive and multi-sensorial and realised through the employment of all means available. Success was quick to follow and in 1996 Chicago’s Nike Town became the main touristic attraction of the city, surpassing every other museum and exhibition with over a million visitors a year.
Figure 1. The “Just do it” commercial of 2018 that had as a main character Colin Kaepernick

3. Thinking differently

Apple is THE quintessential brand, a true cult that has made its mark on history through its revolutionary approach to information technology and marketing.

There lies a deep connection between all the material and immaterial elements, the tangible and intangible of the Apple experience. Behind every product of the Cupertino’s brand, there is a unique, clear and coherent vision that makes it a part of other marketing moments and turns it into an effective vehicle through which everyone perceives the brand that gave it life. Products’ shapes are intrinsically linked to packaging shapes, the atmosphere you breathe in an Apple store also comes through online marketing, the colours and icons of the interface can also be found in their ads, the behaviour of sales assistants welcoming visitors to the store is the same of its leading testimonial, Steve Jobs. Every little piece of the Apple world “can perfectly be traced back to a sole project, global and all-encompassing, held together by a strategic and design-oriented vision of the brand.

The unbreakable link between the development of Apple products and the marketing strategies that launch them is tangible in the success of their most famous ad campaigns.

In the 80s, Cupertino’s company launched its first Macintosh with “1984”, an advertising masterpiece which was to write the history of marketing. The spot clearly references
Orwell’s literary masterpiece of the same name, a dystopia governed by the ever-present glare of the “Big Brother” talking to the masses through monitors. The crowd, sluggish and unresponsive, is only awoken when a brave heroine manages to go beyond security and break the screen with a hammer, saving everyone from the threat of conformity and the “status quo”. Macintosh represents a break from a deep-rooted system of uncritical thinking and lack of creativity. The product is depicted as a change in paradigm, able to “democratise” the use of technology, in most part thanks to an easier and intuitive interface, accessible to anyone.

The phrase “Think Different” was coined in 1997 in the context of a revolutionary institutional marketing campaign that describes and sums up the “vision” of the bitten apple.

The spot features a line-up of important figures such as Martin Luther King, Mahatma Gandhi, Albert Einstein, John Lennon, Maria Callas, Pablo Picasso, Bob Dylan and many more, while an inspired and provocative narrator explains: “here’s to the crazy ones, the misfits, the rebels, the troublemakers, the round pegs and the square holes, the ones who see things differently. [...] Because the people who are crazy enough to think they can change the world, are the ones who do.”

Between 2006 and 2009 the ad series “Mac vs PC” was broadcast, featuring 66 commercials and focusing on the comparison of two lifestyles exemplified by the technological products.

The two computers are personified in two opposing characters, where the Mac is embodied by a young man, who dresses casually and is always able to come up with innovative solutions, while the PC is personified by a clumsy man, awkward in the contemporary world, clinging to old-fashioned stereotypes and obsolete conventions.

The comparison was thus presented mainly in terms of social identity, suggesting a different attitude in accepting technological challenges designed to make Apple consumers stand out from those who were not part of the community.
Figure 2. 1984 Apple Adv Campaign

Figure 3. 1997 Apple Adv Campaign “Think different”
4. Extended family

If, as we have seen so far, on the one hand a brand can influence or outright determine specific behaviours or even lifestyles as an active presence in the lives of its consumers, on the other, it is true that a “reciprocity” criterium exists, which dictates that a brand will be led by its supporters to behave and express itself in a manner that is consistent with the collectively intended and shared values, so that the community it represents can safely identify with it.

Reciprocity is not a mere issue of marketing, therefore it does not end in the choice to buy a product or not. To better understand this principle, it is useful to examine quite a sensational incident, which took place in 2013 and involved the brand Barilla.

In a radio interview, the company’s President, Guido Barilla, stated: “We will not feature homosexuals in our commercials as we are fond of the traditional family. If the gays disagree, they can always eat a different brand of pasta. Everyone is free to do what they want as long as they don’t bother others.”

This statement backfired on the company’s business, even starting a boycott campaign of Barilla products around the world. The company immediately ran for cover, publicly apologised and adopted wide-reaching inclusive practices, both internal and external, culminating in the institution of a “Diversity & Inclusion Board” which had the goal of monitoring and defining the objectives to reach in order to protect staff’s rights and fight inequality on grounds of sexual orientation, gender, ethnicity and disability.

It was a complete backtrack on the concept of family, consistent with modern times and current standards, which earned Barilla the top score on the “Corporate Equality Index”, drawn by the “Human Rights Campaign”, one of the most important associations for gay rights in the world.

This episode helps us appreciate the need for a systemic and integrated vision of the delicate relation between “brand/target”, to be continually and organically updated in conjunction with societal changes. The concept of “family”, historically a value at the foundation of Barilla, has radically changed in recent decades, evolving from a traditional structure to a plurality of models that do not necessarily include the traditional roles of “father, mother, children”.

With the institution of divorce and all the societal, cultural and economic transformations that have occurred in developed countries, families have been subject to profound changes. This has altered family roles, composition and the very quality of interactions between family members.

Guido Barilla’s statement in 2013 thus revealed not only a cultural delay but, most importantly, a misalignment between the values expressed by the brand and its actions, running the risk of creating an emergency and seriously compromising its perception in the target audience. The word “emergency” in systemic terms emphasises a “bump” in the
system that has the characteristics to modify the behaviour of the system itself, progressively impacting all other elements in a chain reaction.

Figure 4. Erberto Carboni - Barilla, “La pasta del buon appetito”, 1952
5. Brand in Product

The case studies examined so far help us to understand that in the era of complexity brands play a key role in the evolution of society and of its language, although they should not be regarded as the only actors on this stage. The “show” that the brands put on through their products, but mainly through their marketing, always aimed at maximizing sales, is in turn affected by the buying audience that receives it, uses it, recognises its values, and interprets it, at times defining a new plot, like in the Barilla example.

That is why concerning ourselves exclusively with product design is to us nowadays meaningless, if not in the context of an integrated systemic vision. This open methodological approach has been aptly named by us “BIP – Brand in Product”.

The name stands for that specific quality in a product, however material or immaterial it may be, that allows the product itself to fully express in all its aspects the primary values that make up the brand to which it belongs, and which make its very existence possible, more importantly.

Namely, we are talking about that mix of identity and identifying concepts of a brand, without which the brand would no longer be recognisable, credible and reliable.
Let us give some clear examples: Apple is identifiable through the concepts of smart, technology, reliability, excellence, made in Usa; Nike through the values of personality, challenge, victory, self-realisation, made in Usa; Barilla is identifiable with the words “pasta”, quality, “family”, and “made in Italy”.

For a company or any business that wants to sell products, interacting and communicating with its consumer base is key to keep these references in focus, to be competitive and long-lasting, regardless of the scale of business.

BIP was thus born to fill a void: the lack of an integrated methodological tool, brand-value oriented, able on one hand to allow for the creation of flexible and effective market strategies, and on the other to identify a targeted and sustainable product innovation. Given the importance of branding in our society and its ability to impact the market as well as societal behaviours, it is crucial to equip ourselves with tools of critical analysis and systemic checking, modelled around the brand of reference. What we aim to obtain is an “open mapping” of the system with which the system interacts, keeping at the centre the company’s brand value. The brand is thus imagined as a sort of dynamic organism submerged in a wider, ever-changing, ecosystem.

For several decades a new teaching methodology on Design has been developed. Drawing inspiration from the System Theory by Ludwig von Bertalanffy (5), this methodology bases any kind of design planning on the analysis of the interactions between systems and between single elements of every system, regarding them as dynamic and ever-changing.

This methodology is called System Design and was fundamental in structuring the methodology of Brand in Product, which is oriented to brand value, has been applied in hundreds of projects developed in the academic context over recent years, and was partly collected in the 2016 volume Brand in Product (6).

To synthetically describe the main phases of the work methodology, we start by identifying BIP Values, that is, by defining the actual set of core identity and identifying values of the brand, namely those who are widely recognized, and not necessarily coinciding with Brand Values (in the event of a “misalignment”).

We can regard BIP Values as a touchstone for Brand Values. To further test value reliability, we study the evolution of BIP Values, identified through the history of the brand, verify their stability over time and that of possible Value Fluctuations.

Secondly, we develop the BIP Value Strategy, which consists in reinforcing the values of the brand, realigning BIP Values and Brand Values in case of a misalignment and, most importantly, in updating value concepts according to the Scenario Strategy, illustrated below.

At this point, we analyse all communicative expressions of the brand through the critical analysis of Brand Identity (visual guidelines, brand colours, type&lettering, variations on the main supports, etc), advertising campaigns, social marketing activity, company printing,
packaging, space design (retail shops, exhibitions, fairs, etc). Verifying the alignment of brand identity elements with BIP Values offers content for the development of the Brand Communication Strategy.

Next, we analyse the Brand History, and research the historical events that made the brand what it is today. Products, services, technologies and know-how are considered in relation to the social, political, cultural systems that were taking shape at the time of their development. This research leads to identifying the Brand Attitude, that is, the brand’s approach to seizing opportunity and bringing about innovation. Projecting the Brand Attitude onto emerging scenarios allows for the development of the Brand History Strategy.

With relation to the market, we carefully examine the brand’s positioning and compare it with the Strategic Competitors, the direct or indirect players to monitor because they are significant core elements of the market system with which we deal. Developing positioning maps thus allows us to verify consistency between BIP Values and Brand Positioning, useful to put together the Brand Positioning Strategy.

The analysis of the Emerging Scenarios consists in identifying the interactions between cultural, social, political, and technological systems concerned or potentially interesting for the brand. By immersing the Brand Vision and Mission in these systems, we can develop Systemic Scenario Maps, useful to create the brand’s Scenario Strategy.

The analysis of the Contexts of Use is an in-depth look into the systems where the brand’s products and services are used, put into practice, distributed, maintained, transported. Through this mapping, we can photograph potential changes in variations of the elements of the Context System, to get to the development of the Context Strategy.

It is essential to operate a complete cataloguing of all the products and services of the brand through Typological Systemic Maps, corresponding to the state of the art and the relevant primary, secondary, accessory, technological, dimensional, ergonomic functions.

This allows us to identify all those typological voids that, through the cross-examination of BIP Values Strategy, Brand Positioning Strategy, Context Strategy, Scenario Strategy, lead us to the Typological Strategy and on to the development of the BIP Overall Strategy.

The merits of this methodology lie in its ability to provide wide and upgradeable strategic tools that can intercept and assess, in the fields of real interest, ongoing or foreseeable changes, in order to seize market opportunities. Once the scope of action is defined, emerging interactions between the elements of the involved systems are defined and selected, and energy and resources are targeted at those in order to generate brand value-oriented typological innovation. Integration between product and communication goes in-depth, as it does not stop at aesthetic factors, albeit necessary, but works simultaneously on more levels, harmonizing them and enhancing their pervasive effects.

To give a tangible example, we can mention the project developed by Barbara Muratori in 2019, about a particularly sensitive and original theme: sex toys for the American brand
JimmyJane. Muratori worked on the project in the context of non-profit research with teaching objectives.

Applying the BIP methodology, the brand identity and history were accurately analysed, defining the BIP Values actually perceived, and then letting them play in the socio-cultural context of reference. It was a far-reaching and multi-faceted task as the theme of sexuality is complex to deal with, oftentimes complicated because it is subject to different interpretations, especially depending on the assumed point of view. Furthermore, we identified all the systems illustrated above, to which to refer the brand JimmyJane, such as market, context of use, and technological systems.

In the context of this ecosystem, the company’s products were positioned, through the use of infographics and typological maps, to further analyse them in detail.

This work led to identifying several design and market opportunities, some more simple, like the possibility of expanding the range or adopting new technological solutions, as well as more complex ones, like creating new typologies of products able to compel new behaviours and emerging social interactions.

This in turn led to the creation, consistent with the Brand Values, of two new typologies of smart sex-toys, one designed for men and one for women, usable by one or more partners at the same time, intercepting the emerging need for expression and sharing in the context of sexual interactions, especially in the more evolved and emancipated societies.

Apart from the just described products, a booklet titled “Svelati” (Unveiled) was conceived, written, illustrated and laid out. The booklet aims to be a vehicle for cultural dissemination by unveiling the different taboos surrounding sexuality. The theme is tackled objectively and delicately, far from the mystifications and misunderstandings that shroud the topic, through a narration that, starting from the antiquity, crosses cultures and peoples until it reaches the digital area, in which the Internet has globally changed the way we perceive relationships. The illustrations accompany the tale giving it a light irony and a pleasantness that helps even the youngest to dive into the theme and unveil the most arduous of taboos.

In conclusion, after a decade of development and application of this methodology, we can confidently claim that the innovation brought about by the BIP systemic approach in the brand context has proved to be extremely effective and productive, ready to be adopted in all those design and production industries that are looking to put in place flexible and trustworthy strategy planning in the medium and long term.
Figure 6. Cover of the book “Svelati” designed by Barbara Muratori

Figure 7. The book “Svelati” has a tear opening system
Figure 8. The inside pages of the book “Svelati” designed by Barbara Muratori.
Figure 9. The sex toy Edoné, charging on his base
Figure 10. The sex toy Imerò, charging on its base
Figure 11. Research about Leica: Brand History Strategy

Figure 12. Research about Tupperware: Typological Systemic Maps
Figure 13. Research about Tupperware: market analysis

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Creating Visual Identity as Constellation: Methodological Project for a Design Workshop

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Abstract | At the crossroads facing design today the idea has emerged of conceptualising and defining a methodology with a holistic perspective, based on the arts and design, which can become installed at the intersection between the biographical and the contextual plane. In a later instance, a fissure or intersection is established between these two planes from which arises a graphic project through the coordination of mechanisms and operations which will stimulate creativity and observation in students. Different dimensions in the construction of a visual identity emerge, whose axes become coordinated through biography, culture, memory and migratory movements. The repercussion at the academic level will be to allow us to expound other teaching methodologies based on creativity, and to specify their implications for artistic learning in a Workshop environment. Finally, this work refers to the quality of university education and its commitment to a creative, intellectual training, incorporating constant questioning and critical reflection.

KEYWORDS | VISUAL CONSTELLATIONS; TEACHING METHODOLOGY IN DESIGN; INFOGRAPHIC OPERATIONS; VISUAL IDENTITY; LAYERS OF MEANING
1. Introduction

“Briefly, what I am proposing is that the psychology of the mature human being is an unfolding, emergent, oscillating spiral process marked by progressive subordination of older, lower-order behaviour systems to newer, higher-order systems as man's existential problems change.” (Graves, 2019)

Is it possible to establish a constellation of binding relations between the biographical dimension and those nexi of meaning present in the inter, intra and transcultural ambit, strengthening the construction of a new visual identity\(^1\)? (Author, 2019)

The experience of teaching is a domain in permanent transformation and innovation, due, among other factors, to the growing democratization of the composition and diversity of students entering higher education. This implies the need for closer support in the learning processes, giving priority to the task of debating the projection of new teaching methodologies.

In the ambit of design, an important research context – characterized by a profound discursive and conceptual consistency – reflects on emerging theory and practice, as well as expounding contingent problems which form part of the collective imaginary linked to education. In this respect, the context is found to determine a space which strengthens the integral and autonomous development of people as subjects capable of managing their own experience of creative learning.

At the same time it is vital to address certain implicit problems, one of which is the debate over which competences are important in the context of the reformulation of learning when it comes to determining the map of the intersections between different cognitive resources, using reflection on the space of design to generate empathic responses to the varying requirements of the social and cultural environment.

Teaching approaches acquire deep meaning in relation to the exercise of professional praxis, and are decisive for understanding how teaching strategies are connected with artistic production. These perspectives constitute the specific manner of understanding, imparting and stimulating learning of the Visual Arts in their different techniques, traditions, forms of construction and specific fields of expression in art and design. It is important to understand that the way in which these models develop is closely linked to the teaching approaches assumed by the same methodological constructs.

For education in the arts, a field in which our reflection is based, the rhetoric of the models of thought has achieved greater density, making them a potential support for conceptual analysis and reflection on motivations, implications and project limits.

\(^1\) Visual identity is understood as the unique characteristics that are defined in a design project. A distinctive quality that gives it both conceptual and visual meaning.
From a critical point of view, education in the arts involves a commitment by teachers to training and development:

“Without a solid, sustained intellectual training which promotes reflection about the theory and practice of education in the arts and its various cognitive domains, there can be no improvement in quality” (Errázuriz, 2015).

Meanwhile, the success of knowledge is conditioned by the students' acquisition of self-regulation strategies, and by a profound focus on the organization of learning. This perspective generates in the student the bases of autonomy and freedom, in order to learn actively and reflectively throughout the development of the project. Linguist and cognitive scientist Noah Chomsky (Chomsky, 1977) says that learning should inspire students to discover from their own motivation, learning to read contents critically and opening themselves to a dynamic, fluid search for new and better creative solutions. Teaching should inspire students to discover for themselves, to ask questions when they disagree, to look for alternatives if they believe that better ones exist, to review the great achievements of the past and learn about them because they are interested.

The field of art allows us to determine critical reflection, through observation and interpretation, under the premise that “in order to know, we must imagine” (Didi-Huberman, 2013, p.11).

In terms of investigation, it is important to determine which competences are of key importance – in the context of the reformulation of learning – for establishing a geography of the intersections between different cognitive resources, in which experience and knowledge of design are decisive requirements for developing projects. Researcher Robin Edman says that it is reflection on experience that generates significant learning, and therefore it must be shared (Edman, 2004, pp.44-45). This enables us to dimension the complexity of the human being and generate, in reflection on the university space, the projection of empathic responses which will strengthen new, living relations of thought. As Albert Einstein said, “the formulation of a problem is often more essential than its solution” (Einstein & Infeld, 1938, p.29).

The practice of design as a discipline should not concentrate on the mere creation and production of objects, but on projecting and relating meaning and establishing a conscious encounter with the social environment. Consequently the transfer of knowledge of Design should coordinate experiences that, in the words of Juhani Pallasmaa, tend to “strengthen our sense of reality and of the ego and transcend the indiscriminate production of consumer goods” (Pallasmaa, 2016).

By enriching the space of dialogue and broadening knowledge in education in the arts, it is possible to determine the coordinates of a learning that can respond organically to the needs which arise in the formation of a society. Likewise, in the reformulation of the narrative present in education, it is vital to understand the artistic environment as a space that projects “the arts as experience and open narrative”. (Aguirre, 2006).
Interdisciplinary reflection implies examining varied experiences as a whole, in the understanding that their connections enable us to project and enrich the scaffolding of a new methodological structure. These experiences generate a learning model that favors the interconnection of ideas and unlimited exploration from a variety of beginnings. It is a means to integral training which builds links between areas of knowledge and always teaches students to perceive more than two situations at a time.

This idea-generating process is influenced by various factors related with the dynamic of the Workshop, including the space where it occurs and the arrangement of the students within that space which together determine the flow and atmosphere of learning. Using the concept of auratic, defined by Walter Benjamin as “a strange tissue of space and time: the unique appearance of a distance, however near it may be” (Benjamin, 2008, p.23), we infer that the dynamic of knowledge transfer generates a unique moment when the aura refers to a fine tissue articulated by space and time which expresses the specificity of a unique moment, in which distance appears to come closer.

Likewise, through the web of interrelations between space and time, the classroom acquires a unique creative value in which the essential interdependences between everyday mental and physical aspects generate a particular way of understanding our surroundings, projecting a specific way of relating causalities and interdependences which are in themselves unquestionable.

From this we may infer that although we are only occasionally conscious of the fact, we all have the metaphysical ability to endow our everyday existence with experiential meaning, integrating it into a specific conceptual system from which are born infinite networks of associations.

In this ability to integrate, it is vital to ask how the predominance of sight and the suppression of the other senses have influenced ways of thinking and teaching, and the “importance of the senses in articulation, the storage and processing of sensorial responses and ideas” (Pallasmaa, 2014). Following the concept minted by Juhani Pallasmaa, all our senses “think” and structure our relationship with the world, although we are not normally aware of this activity.

The prevailing teaching methods and educational practices continue to separate the mental, intellectual and emotional capacities of the senses and of the multiple dimensions of the manifestation of the human, not recognizing the full depth of the fundamentally holistic essence which should exist in our self-awareness. Didi-Huberman says of this fusion: “…I refuse to separate the emotional from the intellectual dimension. I believe that images and words are related. Everything goes together…” (Didi-Huberman, 2014).

The act of educating seeks to establish adequate conditions for the transfer of knowledge. The experience of creative learning, meanwhile, implies an unfolding, emergent, oscillating spiral process towards the acquisition of new knowledge which becomes more complex as man’s existential problems change and his relational structures with his surroundings are
transformed. For Mihaly Csikszentmihalyi, creativity is situated in the change or transformation of an existing field into a new one (Csikszentmihalyi, 1996).

In the system of visual codes present in the genesis of the Workshop project, as Albert Einstein said, “the psychical entities which seem to serve as elements in thought are certain signs and more or less clear images which can be voluntarily reproduced” (Shavinina, 2003, p.25). In this space of associations, we perceive a threshold in which the creative process guides the keys of access, defining and facilitating a fluid transfer of information.

This paradigm shift should open all those hegemonic educational practices to debate, promoting reflective discussion about recovering teaching experiences which make up new cartographies of the world through learning that awakes in students the capacity to establish multiple connections from their own experience of being. In the words of Jean-Paul Sartre: “Understanding is not a quality which reaches human reality from outside; it is a characteristic mode of existence” (Sartre, 1993, p.9). This, in the understanding that reflecting on our own activity opens up the possibility of transforming it, generating certain repercussions in both those who teach and those who learn.

But it must also be understood that when people have the possibility of correlating their educational processes with their own realities, the context and the social circumstances become decisive variables in the promotion of learning:

“Undertaking any activity does not happen in a vacuum but is charged with memories, expectations, abilities, interests, attitudes and personal characteristics.” (Monereo et al, 2013)

Finally, we establish a dynamic, vital relation in the transfer of certain contents from the historical context to a constellation articulated by a multitude of relations determined not only by intra-cultural aspects, but also by their implications in the influence of biographical references.

2. Linking methodology: creating visual identity as constellation

The whole learning system implies contextualizing and relating significant experiences with one's surroundings, not from the fragmentation of information but from an integrating globality which consequently generates identity in the creative process.

In contrast, removing the context of learning involves the projection of teaching methods and educational practices which move away from this holistic relation. Thus a critical look at methodologies which do not generate nexi of meaning becomes a priority in any diagnosis of design as a discipline.
The so-called Linking Methodology for Workshops was developed in the context of investigation into new paradigms of project-related learning in design studies at universities, in order to relate artistic praxis with the different cultural, social and political layers and thus re-signify their identity codes. Coordinating these three spheres requires us to constantly re-think and re-question the frameworks of thought, and on that basis design new learning models.

Structurally, this is defined as an associative teaching method, the areas of which are not dissociated but dynamically correlated towards determining new relations of thought. In projects, this associative teaching methodology aims to establish a critical reading of teachers' practices in a Workshop space, in the understanding that their implications have been little understood, and that the dynamic linking relation between theory and praxis constitutes a dialectic spiral. The aim is to use the creative genesis of projects to strengthen conscious observation and thus detect ideas, defining time as a dynamic axis by which meanings are articulated, in a process constructed in interaction with others.

Thus this space acquires direction as the body of the workshop takes shape through collective narratives and conversations which enrich the exchange of ideas. The methodology of this linking structure integrates and connects the different dimensions intersected in the construction of a visual identity, and whose axes are formed by biography, culture, tangible and intangible memory and migratory genealogical movements. Consequently, every new intersection of these dimensions generates a map of living relations visible through a system of conceptual infographics, in which the results give birth to new links. Infographics are defined as a visual navigation system in which the synthesis of formally decoded concepts is represented, hierarchized and correlated dynamically.

In terms of the conceptual dimension, we infer that the learning structure of the workshop seeks to develop the intellectual, emotional and existential or spiritual aspects of intelligence in the search for an essential unity.

“I refuse to separate the emotional from the intellectual dimension. I believe that images and words are related. Everything goes together [...]. For me there is no separation between the sensible and the intellectual. Having said that, the emotional aspect is central.” (Didi-Huberman, 2014).

Finally, the formal structure of this methodology comprises four phases making up a circular teaching process, the layered geography of which establishes a unique process of reflection; the stages have been called metaphorically the INTERIOR WORLD and the EXTERIOR WORLD, and the intersection between them, the FISSURE. These three stages make up a metanarrative of relations which are projected like synaptic conductors of receptive sensitivity; these establish a navigation map coordinated by Phase 4, the CONSTELLATION phase.
2.1 Phase 1: Interior World

As the French art historian and essayist Georges Didi-Huberman (Huberman, 2014) says, to know one must define the space from which one speaks. This also implies indicating a position and taking a decision in time in relation to our unconscious desires. It is having a space in the present to aspire to a future. But all of this only exists against the background "of a temporality that precedes us, envelopes us, appeals to our memory even in our attempts to forget, to make a clean break, to pursue something absolutely new". Taking a position is not to be seen as an act of rebellion, but of taking a position with respect to something, determining the specificity of a point of view.

In essence, the Interior World phase seeks to navigate in the biographical ambit of the being in order to recover, by a primary impulse, the nexi which give meaning to the theme of the project.

As a path of investigation, it proposes to the student a profound, sensitive journey towards the appropriation of the memories and experiences of her own genealogy to endow them with meaning, thus generating a conceptual matrix which is precursor to the project. This is an uncertain space that the French investigator Guy Aznar describes as the space where “nobody feels alone with his illusions; he travels with them to imaginary countries” (Aznar, 2004).

It also projects investigation connected with our inheritance from our ancestors, in order to recognise certain variables on the political, social and cultural planes of our own history. Among these layers of transfer from each person's family inheritance, there is also room for an important intersection of data from the genealogical migratory legacy and its particular forms of settlement, to which is added the flow of hereditary trades.

The act of constellation is defined as an exercise of linking and resignification of the various happenings and referents which surround and condition the individual in the auratic moment. At the same time, the instance of constellation implies a space-time that is not linear, but capable of multiple relations.

In the Interior World we investigate the elements of history that have permeated the individual as a primary impulse from which to identify personal interest; and then, in the Exterior World, since we are aware of the previous milestones by which we are marked, we can become actors and articulators of a new tissue of identity. Thus, the biographical research is transmitted and received in the degree that it is communicated from personal interest and meaning.

The personal resonance consolidated in the Interior World interacts with a different space, which intervenes to transform our perception in a creative act of design. Nothing here is coincidence – all the answers coexist in the family biographical ambit. Knowledge of this information is not an isolated event; it is related with other dimensions of learning, which in turn intertwine with self-knowledge as the path of articulation between the interior and the
exterior. The student must know her own environment and herself, correlating these two
dimensions to determine an unpredictable, multidirectional relation between a "whence"
which is created and a "whither" towards which this creation is projected.

In the Interior World, navigation around significant artefacts in our own memory generates a
primal link of profound symbolic value. Thus coming across letters, everyday objects and
documents, or holding revealing conversations with family members, define an opportunity
to recognise the inheritance of our ancestors and our relation with those no longer with us;
this other space where “The dead are invisible, but not absent” as Saint Augustine said
(Tessitore, 2002, p.6)

The development of this stage of investigating our memories acquires an intimate, personal
character, which implies eliminating the influence of the teacher – whose only task is to
facilitate the articulating process of receptive sensitivity, allowing it to flow naturally. Thus
teaching is a performance, in which there is always a presential and auratic element.

This poetic imaginary of metaphors, present in our Interior World, establishes a series of
interrelations and connections, which are interwoven in an infographics substrate.

2.2 Phase 2: Exterior World

In the Exterior World, the artistic and cultural imaginary acquires great importance,
establishing a binding relation between man and his environment and projecting itself as a
significant instance of permeability to different creative referents. The human being
structures the Exterior World in the image and likeness of his Interior World; thus the
connections and significates that he establishes will be determined from his own conception
of himself and of his surroundings, defining a different space in which both dimensions will
finally coexist.

On a methodological level, it is a central concept from which students analyse and research
their social and cultural context and form links through different creative tasks set by the
teacher, both two-dimensional and three-dimensional, with references in art, philosophy,
ecology and politics as they impinge on their different expressions and ideologies. These
referents may include exhibitions, books, essays, documentaries and films, which are
translated into project assignments that allow students to reflect on and propose their own
visual codes to develop the identity of their narratives. Thus each external referent
determines the possibility of opening a dialogue and reflecting on the implications of the
student's observations.

Finally, whatever our perception of the Exterior World, it is a reflection of the correlations of
meaning that coexist in our Interior World; their results are unknown but essentially valuable
in their capacity to reveal new images from a subtle breath of information. So this instance
allows students to broaden their creative referents, determining processes of meaning and
emotion. To take a position, we must submerge ourselves in both worlds in the certainty of
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an encounter which will reveal a unique new project space of self-recognition called a *Fissure*.

### 2.3 Phase 3: Fissure

In this stage of the project, the INTERIOR and EXTERIOR worlds become connected and correlated in the geography of a residual space called a FISSURE.

This *fissure* or crack allows students to generate a space of own recognition in which to address a graphic structure which forms a constellation or coherent relation with all the navigation processes carried out during the project.

In a different context, this intersection unveils and reveals a unique opportunity for project development, specific at the level of relations and observations, born of the students’ own biography. Gastón Bachelard says of this: “Nothing is evident. Nothing is given. Everything is constructed” (Bachelard, 1934).

In this stage of chance and fortuitous associations, solution-finding is established from a process which does not follow any structural logic, but permeates the finding of new relations.

The project proposal emerges, with its degree of urgency and relevance, in the space of the *fissure*; this implies self-questioning about the impact that its object will generate in the field of design, in order to identify who will be the recipients of its content.

Among the problems addressed are the destruction of the environment, social inequalities, memory and identity, migratory movement, the relation between geography, territory and landscape, etc. These proposals allow the design to be re-thought and re-defined, acting as a meta-language for questioning of contents. In this stage there is an imperative need for actions to educate the consciousness, modify beliefs, transform imaginaries, un-learn in order to reformulate and question and reconfigure conceptual frameworks about important aspects for man and society.

### 2.4 Phase 4: Constellation

The CONSTELLATION phase establishes coordinating axes of meaning, drawn on a linear or divergent narration, acquiring profound meaning in the person by whom they are determined. In this stage, the student designs, articulates, correlates and communicates her observations with a certain coherence, fluidity, flexibility and originality. The constellation of these axes of meaning defines a network of new associations of thought articulated in a conceptual matrix.

This creative instance is directed to a determined end, even if, in practical terms, the product is not immediately applicable or is still being processed, suffers imperfections or is incomplete in the terms of the project. In this way the process is validated as a creative structure.
In methodological terms, a log is kept with a cartographical record of the voyage of the project with the intersection of various significant factors and events. In this meeting of relations and courses, discovery will consist in “seeing what everyone has seen and thinking what no one has thought” (Szent-György, 2013)

The final graphic piece generates different creative supports, such as object books, new digital applications, performances, montage displays and data visualization. This methodological approach with four research phases allows us to generate a final project with a unique degree of fidelity, a recipient of meaning, clearly recognised as such by its target audience. Finally this process acquires a unique value, strengthening new paradigms in the field of design.

3. Infographies: projects

3.1 Sequence from one student: example

Felipe Pavez’s project addresses the concealment and reconversion of the main detention and torture centers registered in Chile, in the context of the dictatorship that occurred between 1973 and 1990, and motivated by the experience lived by his own father (Figures 1-6).

![Figure 1. Interior World](image)
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Figure 2. Exterior World
Figure 3. Fissure and Constellation
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Figures 4-5-6. Project
3.2 Example of Interior World

The Interior World phase seeks to navigate in the students’ biography (Figures 7-9).

Figure 7. Infography by student Alexandra Pijas, 2016.
Figure 8. Infography by student Trinidad Borja, 2017.
3.3 Exterior World

Methodologically, a conceptual matrix from which students analyse and investigate their social and cultural context (Figures 9-12).

Figure 9. Infography by student Victor Narvaez, 2019.
Figure 10. Infography by student Catalina Toleda, 2015.
Figure 11. Infography by student Mariana Hernández, 2016.
Figure 12. Infography by student Victor Narváez, 2019.
3.4 Fissure

The INTERIOR and EXTERIOR worlds become connected and correlated in the geography of a residual space called a FISSURE (Figures 13-16).

Figure 13. Infography by student Agustina Leguizamón, 2017.
La figura del terreno en Antofagasta se caracteriza por una costa extensa y angosta. Lo que determina que la vida de un ser humano en su día a día se condiciona en una alta porcentaje a la costa del mar.

La costa se caracteriza por ser rocosa y bañada en conchas, que al golpear fuertemente contra las olas forman la arena. Las olas artificiales y rompen en costas, y son formadas a partir de capas bordeando la costa.

El ir y el venir de las olas traen con ellas conchas y elementos orgánicos del fondo marino debido a la frotación del agua.

Cada una de los granos de arena trae con ella una historia a lo largo de millones de años de su existencia al igual que el número de kilómetros recorridos, no hay dos iguales. Solo se consideran conchas a los esqueletos de los moluscos. Una vez que el mar decide expulsar los esqueletos es cuando este ya cumplió su ciclo bajo el fondo marino.

Antofagasta / Océano Pacífico. La porta da, monumento natural que caracteriza a la zona, que está construida a partir de rocas sedimentarias, estratos de areniscas y capas de restos de conchas.

Una secuencia de rocas sedimentarias fosíferas ubicada en la zona costera. Plaja rodeada de acantilados desde 80 metros de alto.

La concha es al TERRITORIO como el territorio es a la concha.

La morfología de las conchas está condicionada al territorio donde pertenece. Todo esto fue moldeado por abrasión marina.

La concha es al TERRITORIO como el territorio es a la concha.

Figure 14. Infography by student Alexandra Pijas, 2016.
3.5 Constellation

This phase establishes coordinating axes of meaning, drawn on a linear or divergent narration (Figures 15-16).

Figure 15. Infography by student Ignacia Navarrete, 2018.
Figure 16. Infography by Antonia Salgado, 2019.
3.6 Final Project

Figure 17. Project “Deterioration of the ecosystem in Santiago parks”, by student Roberta Banda, 2016.
Figure 18. Project “Deterioration of the ecosystem in San Carlos Park”, by student Roberta Banda, 2016.
Figure 19. Project “Deterioration of the ecosystem in Panul Park”, by student Belén Acosta, 2016.
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Figure 20. Project “Chile: land of immigrants”, by student Belén Acosta, 2018.

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Data visualization as a qualitative driver in knowledge communication: an interpretative framework

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Abstract | The growing cultural relevance of data literacy requires a deeper acknowledgement and assessment of the role that data visualization can play if interpreted as a mean to increase the quality of information besides reporting its quantitative features, being therefore actively integrated within the current ecosystem of knowledge communication. In fact, while data visualization is often considered as a merely quantitative tool for information analysis and reporting, the methodologies underpinning this particular branch of visual communication go far beyond the simple restitution of numbers and sizes, frequently approaching more qualitative stances. Highlighting an implicit correlation between data visualization and qualitative research, the present contribution proposes an interpretative framework based on a set of five comparative analogies, in relation to which a same number of emergent fields of application for data visualization are identified, described, and contextualized.

KEYWORDS | DATA VISUALIZATION, QUALITATIVE RESEARCH, KNOWLEDGE COMMUNICATION, INTERPRETATIVE FRAMEWORK, COMPARATIVE ANALOGY
1. Introduction

Since the early years of the new millennium, alongside the massive acceleration occurring in the technologic system, a growing interest in investigating the role of visualization in the production, transmission, and dissemination of knowledge started to spread transversally within the international research community (Burkhardt, 2008).

Definable as the realm of knowledge communication, this now well-established disciplinary current has frequently pointed out the strong potential of data visualization – broadly intended as the visual representation of data through both analogical and digital means – in dealing with the surplus of information generated by contemporary society. In fact, the observation of recent trends in this field seem to testify how, despite a remarkable aesthetic diversity, many experiences tend to accomplish common principles and procedures, which “result in a type of emergent taxonomy [...] and reveal the initial building blocks of a new visual language” (Lima, 2013, p. 159).

Nowadays, the flourishing iteration of efforts aimed at codifying the syntax of this language, and addressing its widespread dissemination, represent a major cultural issue in terms of data literacy, since “in the information age the ability to read and construct data visualizations becomes as important as the ability to read and write text” (Börner, Bueckle & Ginda, 2019, p. 1857). For this reason, is important to emphasize how, while data visualization is often considered as a merely quantitative tool for information analysis and reporting, the methodologies underpinning this branch of visual communication go far beyond the simple restitution of numbers and sizes, frequently approaching more qualitative stances (North, 2006).

This attitude recalls quite impressively the domain of qualitative research, definition standing for an array of strategies shared by many academic disciplines “for conducting inquiry [...] aimed at discovering how human beings understand, experience, interpret, and produce the social world” (Sandelowsky, 2004, p. 893). More than with exact counts or measures, qualitative data analysis is concerned with the detection of meanings, concepts, definitions, characteristics, attributes, metaphors, symbols, and descriptions of things, constructing research outputs suitable for being returned according to interpretative, discursive and thematic paradigms.

This analogy, highlighting an implicit correlation between data visualization and qualitative research, represents the common thread of the present contribution, aimed at defining an interpretative framework suitable for evaluating data visualization, and its potential qualitative impact, in relation to the broader field of knowledge communication.
2. The growing relevance of data literacy

Is important to premise that, within the bounds of this reasoning, the notion of knowledge communication will be primarily understood in its role of fundamental human prerogative, as “the (deliberate) activity of interactively conveying and co-constructing insights, assessments, experiences, or skills through verbal and non-verbal means” (Eppler, 2007, p. 291). This interpretation reverberates in the ultimate purpose of data visualization, which resides in the willingness of formalizing – through the design of infographic outputs such as tables, graphs, charts, diagrams, maps, or similar – a common language able to communicate information across cultural, translational, and disciplinary boundaries.

Such an attitude gains even more significance in view of a technological system which has led in few years to “the datafication of everything” (Mayer-Schönberger & Cukier, 2013, p. 194), and where the increasing proliferation of new digital devices, networks and infrastructures endorses the possibility of mapping the world in a mostly quantifiable, analyzable and computable way.

As we are all surrounded by information operating at varying degrees of immediacy to our lives, becoming at the same time both data producers and data consumers, it is important to identify and develop the “competencies that make up the all-round talents of a visualizer as well as those required to be an efficient viewer” (Kirk, 2016, p. 385). From this point of view, data visualization designers should start to operate according to a stance which is not simply data-driven, but also and especially data-informed and data-aware (Tan & Churchill, 2018), being able to encode new ways to turn information into value, and define the best ways to address them to a particular audience.

At the same time, also qualitative researchers began to advance the claim for redefining the traditional methodologies employed in gathering, analyzing and summarizing data, in order to understand more deeply how these activities affect the general process of investigation in the midst of the “information explosion” (Major & Savin-Baden, 2012).

The growing cultural relevance of data literacy requires a deeper acknowledgement and assessment of the role that data visualization can play if interpreted as a mean to increase the quality of information besides reporting its quantitative features, and actively integrated within the current ecosystem of knowledge communication. In this sense, it is of paramount importance to emphasize the qualitative features of data, from “the most personal information that is essential for our physical survival to the most abstract form of information that encompasses our personal myths, cultural development, and sociological perspective” (Wurman, 2001, p. 160).

Moving from these premises, the essay outlines a range of analogical – rather than strictly logical – arguments to support data visualization designers in gaining awareness about their role in turning quantitative information into qualitative experiences, fostering more consciousness in dealing with the increasing complexity of the world we live in.
3. The qualitative value of data visualization

Since the most ancient times, the visual display of information has been practiced across an extremely wide range of disciplines – ranging from mathematics to architecture, from economy to medicine, going up to sociology, psychology, music, art, and many others – as a vehicle to address sector-specific epistemology. It is also because of this transversality that data visualization has struggled for a long time to find its own disciplinary status, which started to effectively establish only around the mid-nineteenth century, meeting the need for managing a growing amount of statistical units becoming more and more significant to understand modern society.

However, while in the last decades data visualization has largely focused on quantitative processes of exploration and analysis, some of its earliest examples were created to show and explain that “the elements to be transformed [...] were no longer just quantities and numbers, but qualitative and semantic elements as well” (Burgio & Moretti, 2017, p. 893).

If we consider the achievement of a balanced ratio between evidence and rhetoric as an essential requirement for translating data into meaningful representations, experts in the field require to develop both statistic and design knowledge, since “without the former, visualization becomes an exercise only in aesthetics, and without the latter, one of only analyses” (Yau, 2013, p. xi). In this sense, data visualization community is growingly stressing the need for its practitioners to adopt explanatory, beyond simply exploratory, strategies in their design approaches, aimed at detecting relationships that may be hidden by summary statistics, and communicating interpretative insights inferred from scrutinized data (Barlow, 2014).

In turn, the potential of incorporating data visualization in qualitative research also started to be acknowledged, firstly as a way for generating hypotheses and developing theory, and secondly a mean to give readers the possibility of seeing the author’s meaning represented in more ways than just verbally and textually (Verdinelli & Scagnoli, 2013).

In light of these considerations, could then data visualization be considered as a qualitative driver in knowledge communication? To validate this perspective, an interpretative framework bridging together data visualization with the domain of qualitative research is proposed and applied pointing out a group of comparative analogies.

On the one hand, five methodological categories are borrowed from the most prominent traditions detectable in qualitative research, as masterly synthetized by John W. Creswell (2006) as:

- narrative approach
- ethnographic approach
- grounded theory approach
- phenomenological approach
- case-study approach
Figure 1. Schematic visualization of the framework proposed in the article.
On the other hand, the aforementioned categories are employed to identify, describe, and contextualize a same number of emergent fields of application for data visualization, emphasizing how these inherently promote a qualitative treatment of information:

- data storytelling
- data thinking
- data integration
- data humanism
- data publishing

3.1 Data storytelling

The first comparative analogy outlined in the proposed framework relates the discipline of data visualization to the qualitative mode of inquiry known as narrative approach, in which researchers focus on the investigation of individual or collective experiences, interpreting the way these are lived and told as data for analysis (Creswell, 2006). The procedures for implementing this methodology imply in the first place the collection, examination and interpretation of data in order to identify units and patterns of meaning, and afterwards the assemblage of those segments according to a clear narrative structure and a temporal – yet not necessarily linear – criterion.

This perspective, where a strong epistemological priority is assigned to the readability of research outputs, inherently points out the role of data visualization design in enhancing the sensorial and synesthetic features “that provide a narrative structure and guide the reader through the story” (Kosara & Mackinlay, 2013, p. 48).

In the last two decades, the narrative instance of data visualization has found an attainable and prolific field of application in the domain of data storytelling, a now diffused label identifying a structured approach for the communication of data insights involving a combination of three key elements: data, visuals, and narrative (Dykes, 2016).

Above all, data storytelling requests data visualization designers to deeply understand the distinguishing features of diagrammatic representation, being able to adopt the appropriate choice to convey specific information, and to translate them into both online and offline communication strategies (Lankow & Crooks, 2012). It is interesting to observe how strongly those competences would impact the treatment of data, since “whether genres are pure or mixed, words or graphics, ordered or not, every piece of discourse requires authors to select the information that is relevant, to express it felicitously, and to link the pieces into a whole” (Riche, 2018, p. 26).

Among the major expressions of data storytelling, one cannot omit the reference to the practice of data journalism, whose origins are traceable since the mid-twentieth century and which today represents one of the most important vehicles for the production of news stories, where visualization is structurally involved to highlight relevant topics.
A leading figure in this scenario is undoubtedly that of Alberto Cairo, Spanish information designer interested in the convergence between visual design and cognitive sciences, working in the field of data journalism since the early 2000s and currently director of the Visualization Program at the University of Miami’s Center for Computational Science. In his PhD thesis, entitled *Nerd Journalism. How Data and Digital Technology Transformed News Graphics*, Cairo investigates “how news graphics has changed as a practice, as a professional endeavor, and as a set of products” (Cairo, 2018, p 17), redefining the search for a balance between the objectivity of representation and the aesthetics of communication.

![Diagram of the impact of data on journalism](image)

*Figure 2. “Nerd Journalism. How Data and Digital Technology Transformed News Graphics”, Alberto Cairo, 2017.*
3.2 Data thinking

The second comparative analogy outlined in the proposed framework relates the discipline of data visualization to the qualitative mode of inquiry known as ethnographic approach, in which researchers gather data immersing in the target’s environment, with the aim to understand their intimate goals, challenges, and motivations (Creswell, 2006). Drawing from a user-centered paradigm, this methodology interprets data as a vehicle of interaction and accessibility towards an entire group, domain, or society, in order to decrypt its shared patterns of behaviors, beliefs, and languages, and address contextualized experience within its cultural reality.

Such an attitude resonates in the principle according to which, to transform information into knowledge, data visualization “must share some context and meaning [...] to become encoded and connected to preexisting experience” (Vande Moere, 2012, p. 16), considering participants’ social background, previous thoughts, distinctive abilities or disabilities.

In this sense, a promising field of application seems to be that of data thinking, a lately emerging concept identifying a range of strategies aimed at supporting design processes involved in the creation of new products or services, where the substantial purpose is to achieve a detailed view on data at every single developmental step (Kronsbein, 2019).

![Figure 3. “Process Matters Workshop”, Sense Information Design, 2016.](image-url)
Understood as a symbiosis of design thinking and data science, the data thinking approach meets the instance for which, “designers need to address the impact of the increasing amounts of data available from a multiplicity of sources and [...] inform how decisions are made” (Newman, 2017, p. 25). This acknowledgement assumes even greater significance if we consider how, in the face of an often-overlooked set of analytical skills, many data practitioners are too focused on accomplishing the usage of specific tools and techniques and not concerned enough with asking the right questions: put the why before the how (Shron, 2014).

Although the concept of data thinking is currently mostly affirmed in the business world, it offers insightful perspectives for addressing more widely the practice of data visualization to better understand people’s mental models, and increase users’ involvement while designing accessible interfaces, interactions, and experiences.

From this point of view, it is particularly significant the approach carried out by the designer and researcher Sheila Pontis, interested in mapping complex data through discerning “what type of information would be more helpful for the intended audience to be displayed in a visual explanation, and with what level of detail” (Pontis, 2018, p. 111). Together with Michael Babwahsingh, in 2013 Pontis founded Sense Information Design, a New York based design consultancy promoting a deeper understanding in all aspects of collaboration and communication, through people-centered experiences aimed at turning complex and unfamiliar messages into useful, meaningful information.

### 3.3 Data integration

The third comparative analogy outlined in the proposed framework relates the discipline of data visualization to the qualitative mode of inquiry known as grounded theory approach, in which researchers systematically collect and analyze data with the aim of generating or discovering a theory rooted in the views of participants (Creswell, 2006). Compared to the previously introduced ones, the intent of this particular approach is to move beyond the purpose of basic description, pushing towards the grouping of unstructured sources into concepts, categories, and codes, to obtain an analytical schema of a process that contributors have personally experienced.

Such perspective is particularly suitable for framing data visualization into the digital ecosystem, where the design process became deeply intertwined to an array of techniques – such as those of data acquiring, parsing, filtering, mining, representing, refining, interacting (Fry, 2008, p. 5) – which not necessarily involve direct manipulation of visible features.

This assumption paves the way for advancing a connection with the concept of data integration, designating the operations of combining data coming from disparate sources, in order to provide a unified view of them and an enabling environment for translating raw inputs into significant and valuable outputs (Roth, Wolfson, Kleewein & Nelin, 2002). Although drawing mainly from computer sciences and information technology, this concept
is indeed strictly related to data visualization, intended as “the process of making data intelligible, enabling human intuition and expert knowledge to be applied in areas where algorithmic interrogation is unrealistic” (Pettifer & Attwood, 2013, p. 519).

Since data integration establishes itself on a strong principle of collaborative community, where data and the tools for their processing should be mutually shared between users, data visualization can actively contribute to the release of participated theories that are both iterative and reflexive, both contextual and conceptual (Knigge & Cope, 2006).

Involving operational methodologies at the intersection of machine learning, database systems, and business intelligence, the field of data integration purposely requires data visualization designers to become acquainted with competences usually more concerned with profiles such as those of coders, statisticians, or engineers.

Figure 4. “RAWGraphs”, https://rawgraphs.io/

In this perspective, one of the most prominent examples is that of RAWGraphs, an open-source web application for the creation of static and dynamic infographics developed since 2017 by the DensityDesign Lab at the Polytechnic University of Milan, building upon previous work on visualization tools, libraries and platforms. Strongly relying on concepts such as open outputs, reusable charts, and community building, RAWGraphs defines a set of instructions for the creation of specific representations, giving users the ability to change the underlying data and customize their graphical variables (Azzi, Caviglia, Elli, Mauri, Uboldi, 2017).
3.4 Data humanism

The fourth comparative analogy outlined in the proposed framework relates the discipline of data visualization to the qualitative mode of inquiry known as the phenomenological approach, in which researchers aim to describe the meaning of one or more lived experiences for one or more individuals about a specific concept (Creswell, 2006). In comparison to the narrative approach, before than the translation of unstructured data into a story, the fundamental goal of this methodology resides in describing the essential nature of a particular phenomenon, deriving significant arguments and statements about its meaning from evidence provided by those who personally experienced it.

Figure 5. “Dear Data”, Giorgia Lupi and Stefanie Posavec, 2016-2017.
If transposed to data visualization, a similar stance suggests the enactment of a methodology in which the design process draws from deeply understanding the causes, consequences, influences and projections referred to a given circumstance, in order to display its connection and significance in relation to everything else (McCandless, 2014).

Such consideration closely intercepts the theoretical dimension of data humanism, which is rooted in the recognition of the interpretative nature of visualization towards the phenomenal world, as “the display itself is conceived to embody qualitative expressions, and the information is understood as graphically constituted” (Drucker, 2014, p. 129).

Standard analysis procedures could lead data practitioners to give priority to numbers before people, losing sight of the most important characteristics which address human beings in gaining self-awareness and developing emotional intelligence: creativity, drive, persistence, motivation, rapport, and empathy (Goleman, 2011). The instances underlying the current of data humanism recall the attention on the personal value of data, interpreting them as a vehicle to construct identities and detect ecologies of meaning, privileging the investigation of small, consistent, and detailed matters rather than big, uneven and scattered ecosystems (Georgakopoulou, 2007).

These are, in short, the foundations and purposes that lay the groundwork for applying a humanistic approach to data visualization, aimed at contextually depicting the uniqueness of phenomenons pertaining single individuals’ experiences through the graphical representation of their intimate, speculative, and even poetic relationships.

Exemplary, in this perspective, is the work of Giorgia Lupi, Italian information designer and partner at Pentagram Studio, according to which “we are ready to question the impersonality of a merely technical approach to data and to begin designing ways to connect numbers to what they really stand for: knowledge, behaviors, people” (2017). Dear Data, probably the most renowned work by Lupi, is a year-long drawing project carried out with Stefanie Posavec: each week, during a year, the two designers collected and measured a particular type of information about their lives, and used these to make a drawing on a postcard-sized sheet of paper, approaching data visualization in a slow, analog, and artisanal way.

3.4 Data publication

The fifth comparative analogy outlined in the proposed framework relates the discipline of data visualization to the qualitative mode of inquiry known as the case study approach, in which researchers explore single or multiple bounded systems, providing accurate, detailed, in-depth insights on data collected from heterogeneous sources (Creswell, 2006). Since the case study approach might loosely select to investigate specific topics drawing from several source, or multiple topics housed within a single source, some disagreement exists about whether this methodology should be considered as an effective type of qualitative research, or instead as an object of study, or even as a product of the analysis.
Dealing with sources is a prominent issue also for what concerns data visualization, since inadequacies in their scientific accountability could lead to misleading or disempowering aspects, such as lack of transparency, merely extractive collection, technological complexity, and deficiency in the control of impact (D'Ignazio & Bhargava, 2015).

In this sense, relevant instances have lately been pointed out by the emerging research field of data publishing, a practice through which data are made public in accordance with associated policies guaranteeing that their provenance, attribution, and truthfulness are appropriately tracked (Candela, Castelli, Manghi & Callaghan, 2017).

Although a general agreement is still to be reached, the academic community started to recognize the need to define specific standards aimed at documenting and referencing the processes underlying the publication of data (Austin, Bloom, Dallmeier-Tiessen, Khodiyar, Murphy, Nurnberger, Raymond, Stockhause, Tedds, Vardigan & Whyte, 2016) In parallel, many important companies, organization and institutions throughout the world have extended their corporate image systems to include guidelines specifically calibrated for the visual display of information, acknowledging “the growing importance of using data [...] and the value of branding them appropriately” (Cesal, 2019).

Figure 6. “Nightingale – Journal of the Data Visualization Society”, https://medium.com/nightingale
Although their formalization into more codified principles is still in progress and mostly empirical, these signals warn us about how the massive spreading of data visualization across analog and digital media calls for an institutional environment able to supervise the circulation of information and establishing protocols for its usage on a case-by-case basis.

Remarkable, in this sense, is the work recently carried out by the Data Visualization Society, instituted in 2018 by Amy Cesal, Mollie Pettit and Elijah Meeks in order to “address that lack of professional development in the field, create a larger community, and [...] establish guidelines for professional development” (Meeks, 2019). The Data Visualization Society has also founded Nightingale, a digital journal based on the Medium publishing platform, with the aim to provide high-quality daily articles covering many aspects of data visualization, including education, entertainment, history, sports, best practices, new techniques, and many other.

4. Conclusions

In conclusion, the framework proposed in this dissertation seems to confirm the hypothesis of an inherent correlation existing between the practice of data visualization and the domain of qualitative research, reciprocally concerning both their underpinning theoretical assumptions and the methodologies applied for investigation purposes. The revealed analogies appear consistent and pertinent, as the corresponding fields of application put forward relevant issues about data – such as those related to their readability, accessibility, usability, personality, and accountability – opening insightful perspectives for practitioners involved in this disciplinary and professional field.

More generally, the involvement of visual semantics can act a powerful mean for leveraging the cultural value of information in order to enhance the spread of data literacy, and is mainly in this sense that data visualization could be intended as a qualitative driver in the processes of generating, organizing, and communicating knowledge.

At the same time, the outlined framework presents also several questionable criticalities, as in the first place the limited number of design examples presented in relation to the five identified categories, which amount could be enriched and implemented with additional references that may have not been here considered. Furthermore, as already mentioned in several passages of this contribution, the arguments upon which the framework itself is articulated rely on an overtly interpretative stance: an aspect, this, which would necessarily imply further inquiry to appropriately validate the effectiveness of the advanced classification.

In any case, this study has provided presumptive evidence to affirm that promoting and enhancing occasions of cooperation, contamination, and fertilization between the fields of data visualization and qualitative research could lead to account the shift from a paradigm founded on data accumulation to one oriented to data signification.
A greater involvement of qualitative research procedures in data visualization would encourage the latter in developing a deeper inclination towards incorporating principles of understanding, participation, cooperation, empathy, and openness, as well as a stronger proclivity in operating in contexts and conditions of uncertainty. Data visualization, in turn, could contribute to the realm of qualitative inquiry by offering a design-oriented perspective, aimed at providing ad-hoc formats and layouts to support researchers in organizing informational contents, as well as at arranging visual shortcuts for helping them in exploring their data more effectively.

More comparative research focused on this specific, intertwined analogy would definitely be welcomed and recommended, acknowledging how the quest for a broader theoretical systematization could contribute to address data visualization in fully unleashing all its communicative, cultural, and ultimately qualitative potential.

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Design and Cultural Sites: New signage methods and languages for fruition, accessibility and storytelling.

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Abstract | The enhancement of cultural heritage is a relevant field for design research and practice, involving important issues such as accessibility, storytelling and knowledge sharing. A good fruition of cultural sites can be promoted through different scales of action and targeted strategies, including wayfinding design. Among its role in facilitating orientation, a signage system can convey identity and historical, cultural and artistic value of the context where it is placed. This contribution aims to evaluate, through the analysis of certain cultural heritage case studies, interesting strategies and tools used to narrate places, defining different approaches regarding interaction with the visitors and relation with the context.

KEYWORDS | INFORMATION, IDENTITY, COMMUNICATION, INCLUSIVE, NARRATION
1. Introduction

Nowadays, the enhancement of cultural heritage is an important topic where the contributions of several interdisciplinary subjects play a key role in communication, sharing, and narration of stories and identities of cultural places. In recent years, the design discipline has seen the growth and strengthening of this research theme and the related debate. The outcomes of these considerations are documented in the form of scientific publications, conferences and events, creation of research groups and university degree courses that place the design of cultural heritage at the centre of their attention and action. That is because design has a natural vocation to communicate the identity and the potential of a place, becoming an important narrator in the context of fruition, sharing and construction of culture (Trocchianesi, 2014).

In this scenario, this contribution focuses on the design of signage systems for orientation and fruition within artistic and cultural sites. Through the analysis of certain case studies, it is possible to outline interesting strategies and tools used to narrate places, both from the point of view of their spatial articulation and in terms of their cultural meaning. A critical interpretation of the design approaches is proposed, considering both the tangible and the intangible dimension, the analogical/digital possibilities, the declination on physical and cultural accessibility, also through non-verbal sensory solutions, and the symbolic-narrative aspect integrated in a specific context.

2. Fruition and accessibility of cultural heritage

Museums, cultural institutions, archaeological sites and even art cities are promoted – or, in other words, enhance their cultural value – when the fruition by a community of regular and tourists reinforces the collective memory and consciousness towards history and identity (Montella, 2009). To encourage a good fruition – intended as the opportunity for an audience to access and enjoy various cultural and art manifestations – every cultural site needs a recognizable visual and conceptual identity, integrated in a communication strategy addressed to a heterogeneous, global and multicultural public.

In this context, the project disciplines and design became strategic after the transition from a merely conservative approach – intended as protection and safeguarding – to promotion activities which provide new meanings and new values for empathic institutions (Lupo, 2013). In fact, various fields – such as exhibition, product, service, graphic, digital, branding and multimedia design – are involved at different scales of action and targeted projects, dealing with important topics including accessibility, storytelling and knowledge sharing.
The concept of enhancement is closely linked to the notion of accessibility, ideally setting the task of unlimited access to culture, regardless of disabilities or sensory limitations.

“The categories with disabilities involved are not only the classic ones but also people suffering from a temporary disability due to illness or accidents, the elderly, the parents accompanying small children who often have specific needs and whose capabilities are not yet fully developed, people suffering from allergies, and even those who, for example, do not know the local language.” (de Paolis & Guerini, 2015, p.73)

In early years, the focus was mainly on the aspects of physical access, determined by natural or architectural barriers, especially for those with reduced mobility. With the diffusion of the “Design for all” approach, the term accessibility took on a new meaning, involving solutions that facilitate and improve the experience to everyone and not just the majority. At present, the definition of barriers has broadened, also including social and economic factors that may affect fruition, from sensorial accessibility to the concept of cultural accessibility. In an accessible and inclusive cultural site, a similar visit experience is guaranteed to everyone in terms of time, understanding and enjoyment.

An integrated communication strategy with a powerful storytelling of a cultural site is shaped by its architectural context, its exhibit structure and all internal and external communication artefacts, from the institutional signboard to information leaflets and social media contents (Lupo & Vitali, 2018), as well as signage and orientation systems. When these elements are recognizable and express a precise and authentic narrative, the institution’s identity activates visitor involvement and establishes an emotional relationship with the latter.

“Ultimately, the image creation process becomes critical to visitors’ final impression. In many instances, this image creation is achieved through the direct manipulation of environmental stimuli both inside and outside of the heritage attraction itself.” (Bonn, Joseph-Mathews, Dai, Hayes, & Cave, 2007, p.346)

Among the traditional visual design artefacts and environmental stimuli, the role of signage is usually underestimated, whereas it can be a useful tool to optimize the fruition of a space and, at the same time, communicate its identity. Signage is not only about wayfinding, but it can be the means to supply information, stories, regulations and various contents like a mediator between the user and the natural or built environment.
3. The signage role between fruition and communication

As known, a signage system is an informational structure consisting of physical and/or digital elements that help visitors in the fruition and understanding of a place. It defines a space, identifies functions and suggests paths depending on the nature of the site with a hierarchic categorization (Gibson, 2009, p.47):

- Orientation signals represent an overview of the place, visually described by a site map with volumetric or planar view, as well as a directory of activities and points of interest. Usually, they are located near the main entrance on freestanding structures and indicate the current position – with the “you are here” symbol – and the boundaries of the site.
- Directional signals regulate the visitor circulation system, especially in the key decision points such as intersections, hallways and elevators/stairs.
- Identification signals are visual markers that display the name and the function of a space, also indicating entrances and exits to primary or secondary destinations. They can express a place’s personality, character and historic context, for example by presenting a logo or evoking an image.
- Regulatory signals make explicit permitted and forbidden actions, usually complying with legal codes. Nevertheless, they should be unobtrusive and clearly communicate instructions or warnings.

However, a signage project is not just about the placement of indication signals. It is closely related to the concept of wayfinding (Lynch, 1960), the answer to our innate orientation need in complex and foreign environments. Understanding the current position, favouring the construction of a mental map and being able to make decisions about the path to take to reach a particular destination (Arthur & Passini, 1992) are cognitive tasks that can be supported by an efficient signage system, especially when environmental clues are not enough. In recent years, the concept has further evolved proposing an interdisciplinary approach that involves not only design disciplines but also environmental psychology, semiotics and ethological science to better understand human spatial behaviour (Zingale, 2010).

The functional role of signage can be summarized in effectively communicating the “hidden logic” of a place, a pattern of movement or spatial organization that becomes the framework to the wayfinding system and helps visitors to navigate easily and quickly in that specific space. On the other hand, the perception of signage plays a crucial role not only in the fruition of a place, but mostly in the narration of its identity. As known, a specific environment is a combination of different elements and its perception can be affected, positively or negatively, by their interaction with the visitor.
In particular, the concept of “ambiance” (Baker, 1986) concerns attributes such as lighting, sounds, temperature, signage, graphic elements and colour scheme.

In the context of heritage and cultural tourism, Bonn et al. (2007) demonstrated the link between specific atmospheric elements and particular visitor behaviours that affect intention to revisit and to recommend the attraction to others.

“The presence of friendly, knowledgeable, and superior-service-oriented staff members as well as the availability of proper signage and general information all assist in ensuring the return of current visitors and positive word-of-mouth evaluations to others about their experience.” (Boon, et al., 2007, p.352)

As any other communication artefacts in cultural sites, signals should balance environmental integration – or the capacity of preventing physical and visual interference – and environmental differentiation – or the ability to avoid excessive mimicry with the surrounding (García, 2007). This means that

“the qualitative nature of the orienting stimuli must have its own aesthetic relevance, capable of activating an attentive fruition, able to capture the attention of a subject and, consequently, having the ability to make itself identified and memorized.” (Zingale, 2010, p.29)

To assure the correct level of environmental integration and differentiation, every project should define a reference point from the local context, adding elements of reinterpretation and innovation. Among the different types of cultural heritage, three “design themes” can be identified (Bozzola & De Giorgi, 2017) in which signage can play an important role:

- Museum systems and historical buildings are place/containers of culture where human talent and historical memory are displayed and divulged.
- Environmental and natural heritage includes historical parks, theme-based paths, nature reserves, archaeological sites and areas of land with historical or landscape value.
- Art towns are cities or towns recognized for their strong cultural and artistic identity with an important tourist flow.

All these contexts should offer suitable tools for their fruition and communication, enhancing their uniqueness and personality. The interpretation of the genius loci, the “spirit of the place”, is an added value needed to build a language capable of enhancing or reinterpreting the place’s identity. Consequently, the action of promoting a cultural site involves the design of functional tools for communication and information, endowed of aesthetic significance, which becomes an important interface between visitors and the environment, making it easily accessible (Piscitelli, Ferrara, & Guida, 2013).
Signage methods and languages derive from the design choices concerning three main components (Calori, 2015):

- The hardware system includes size, materials, mounting solutions and all the physical aspect of signals. It can be tangible – with traditional systems – or almost completely intangible – using digital solutions.
- The graphic system includes the configuration between shapes, colours, typeface, symbols, layouts and pictograms. It is the core of the visual communication and an important element for the transmission of information, identity and storytelling.
- The information system involves the message that should be communicated. It mainly concerns hierarchic orientation instructions but can also extend to various contents such as multisensory stimuli and interactive experiences.

As discussed below, original solutions for each of these components combined with a sensitive approach to accessibility and, in some cases, the use of new media allows plural and multicultural narratives.

Today, the “one-to-many” model (Spallazzo, Spagnoli, & Trocchianesi, 2009) - mainly used in audio guide and information panels – is outdated and was replaced by a multimedia approach which allows a more personal fruition with tools for interaction, edutainment and appropriation of an individual memory in a community context.

4. Case studies

Based on these considerations, a number of case studies were analysed. Certain recurring attitudes may be identified and, in particular, it is possible to summarize four different approaches, resulting from the combination of opposite attributes.

Regarding interaction with the visitors:

- A passive signage system communicates its information with a low level of interaction with the user. It is clearly visible and reachable with a self-explanatory message, usually in graphic form. The storytelling aspect is guaranteed by its coherence with the communication strategy of the cultural site.
- An active signage system communicates its information with a high level of interaction, mainly involving the visitor in a selection process of multimedia contents. These tools allow a custom-made experience in terms of time and topics. The storytelling aspect is supported by platforms of information at
different scales with the possibility of connecting different cultural sites as a network.

As regards the relationship with the context:

- An integrative approach is realized when the physical elements are perfectly fitted in the identity of the context which is well represented and recognizable. They follow architectural alignments, recurring shapes or symbols and use selected colours that blend with the environment. Also, another form of integration includes the technological systems that dematerialize their presence with the effect of a place that “speaks” for itself.

- A divergent approach is realized when the signage elements are easily detected as external artefacts that instate their presence through foreign aspects such as strong colours and non-contextual materials. However, they do not interfere, but use a non-mimetic language that accompanies the visitors as a silent guide.

![Four strategies to narrate places through a signage system. (Authors’ diagram)](image-url)
4.1 Same language, different versions of inclusion

The signage project for the Wilanow Palace Museum of Warsaw by Studio 2x2 (2015) is designed to make every visitor independent in the discovery of museum, park and surrounding areas. The system was introduced in order to organize the information space and to increase its visual coherence through the development of a range of indoor and outdoor panels and directional signs. The graphic operation overlaps with a multitude of forms, epochs, styles and hues existing in the context and minimizes its language in monochromatic signs and pictograms, designed based upon the structural elements of the chosen typeface. Visual coherence and integrated signals into existing elements – such as light poles and outdoor furniture – are the guidelines of a neat operation which effectively conveys the identity of the place without the involvement of other media.

In the perspective of inclusiveness, the studio created a specific guidebook for autistic people to help them have a more reassuring experience. Based on discussion with experts in the field, the information was translated into visual communication, considering the specific perception of the target users. This is an interesting example of a passive signage system with an integrative approach which enhances the value of the cultural site, leaving space for complementary accessibility-oriented actions.

![Figure 2. Signage project for the Wilanow Palace Museum, designed by Studio 2x2, 2015. The simple visual language is recalled in all communication artefacts, including the guidebook for autistic people. © STUDIO 2×2, photo: Maciej Bączkowski.](https://example.com/figure2)
4.2 Storytelling of musical heritage: a sensory narrative

The Notenspur (Music Trail) – followed by other paths like the Notenrad (Music Ride), Notenbogen (Music Walk) and Notenweg (Music Path) – is a 5.3 km city itinerary, articulated in 23 stations and accessible by foot which connects place of birth, lives and works of numerous prominent composers including Bach, Schumann and Wagner. The idea of a music trail for the city of Leipzig, proposed by Prof. Werner Schneider in 1998, was initially rejected by the city authorities as unnecessary and unrealizable. But in 2006, the Cultural Department prompted a feasibility study highlighting a potential interest on behalf of tourists and launched a design contest for a route and audio guidance system, eventually installed in 2012 (https://notenspur-leipzig.de/termine-verein-chronik/chronik/das-projekt-notenspur/design-wettbewerb-wegeleitsystem/).

The sensory narrative is the focus of the proposal by German design studio Gourdin&Müller. In a place deeply permeated by its musical heritage, urban exploration is combined with a music discovery tour by means of a traditional orientation system and relevant audio tracks for each location. Information panels, comprising a vertical information surface at eye level and an orientation point on the ground, are the tangible elements of the system which also create a strong and explicit visual identity, supported by the chromatic impact. In particular, the orientation disks are placed at every traffic junction, guiding the visitor from one station to another. Fruition of audio data is guaranteed in the form of download stations, free of charge, and with free-to-rent devices offered by the tourist service and cultural institutions. Additionally, sound oases are proposed in quiet, park-like locations. The audio reproduction is triggered by the visitors when they sit on a bench or cross a motion detector.

In this case study, the combination of tangible elements (signals) and intangible messages (music) creates a direct emotional and multisensory experience, making classical music a tangible presence in day-to-day living space. The Notenspur narrates the city heritage in a stimulating and accessible way for all age groups, regardless of their level of musical education, and encourages the interaction between present and past. The combination between divergent signage system and an active interaction reinforces the relationship between the musical heritage, the place and the curious visitor.

4.3 Augmented city for a custom-made cultural experience

The Italian city of Piacenza is the scenario for the “Sonorizzazione Urbana Aumentata” (Urban Augmented “Soundtracking”) project, developed by Tualba in 2015 and updated in 2019. It became the first city in Europe to be mapped with the use of Beacons. After the successful experimentation of the same technology within the wall of the art gallery Pinacoteca di Palazzo Farnese, the project has conceptually crossed the limits of the
single cultural site, transforming the entire city into an open-air museum. By using the Piacenza App, the visitor can choose between three urban itineraries: Sacred Art, Profane Art and “Luoghi Dotti” (Academic Locations). The audio tracks, wrote and performed by local talents, are triggered automatically by the proximity sensors, each associated to a point of interest. After the last update, the app also includes an events calendar with live notifications and information about commercial and food&wine activities.

The orientation system is fully digital: an interactive map shows 32 cultural and artistic attractions and live directions to reach them. Thanks to the Beacon technology, the informative level goes beyond the urban dimension, following the visitors inside museums, churches and art galleries, showing multimedia contents related to each location. Tourists and citizens can freely live the city and enjoy the beauty not through an invasive filter but with a personal guide. The map gives an overview of the points of interest and it is always accessible, so the itinerary of the visit can be planned in advance. As in the pilot project, the app is a practical tool to recover contents and information after the visit, with the search function or in a library of personal bookmarks (De Marchi, 2015). Apps and proximity detection systems are perfect examples of active signage systems with an integrative approach. They can change the cultural experience, giving a high degree of customization in terms of content, fruition time and categories of information. The cultural site becomes an open, flexible and multisensory space which proposes an immersive practice for habitual and new visitors. Nevertheless, from the visitor’s point of view, two accessibility-related issues could arise. Audio tracks must be available in two languages, at least, and a totally digital system could leave out certain categories of people not able to manage digital devices in autonomy. On the other hand, from the museum point of view, the Beacon technology allows collection of data on visitor behaviours (such as people flow and time of visit for every room/artefact) which are crucial to support future strategies and curatorial choices. In conclusion, the concept of augmented city as an active and integrated system is both part of a cultural marketing strategy for the promotion of the city and its territory and, at the same time, a means to enrich tourists and even residents with a custom-made experience, combining technology and creativity.
The information system based on proximity sensors is dematerialized, fully integrated in the context and works with a digital interface. Property: Piacenza Municipality

4.4 Complementary systems to narrate complexity

Traditional and digital orientation systems can coexist in a complex cultural site when its fruition involves several targets of visitors with different necessities and expectations. The Archaeological Park of Pompeii was the first Italian cultural site with a visual identity system, selected among competitors in a public contest and designed by Zelig studio in 2000 (http://www.alessandrococchia.com/2019/12/14/pompeii-logo-brand-identity-signage/).

The project involves different archaeological sites – Pompeii, Ercolano, Boscoreale, Oplontis, Stabia – and the National Archaeological Museum of Naples, using a unified language for all the official communication artefacts. In particular, the wayfinding system changed the fruition of the location itself, compensating the lack of a single privileged path. Minimizing visual interference, signals were designed as narrow poles with an elliptical section, engraved information and colour combination of white, black and Pompeian red, perfectly contextualized in the excavations. Due to its durability and resistance to atmospheric agents, the studio decided to use the composite material Corian®.

The reduction of visual impact was a strategic choice that allowed a later integration with other support channels and accessibility initiatives such as “Pompeii for All” (Sicignano & Di Ruocco, 2019) and Smart@Pompeii (Bruni & Papi, 2018). “Pompeii for All” allows all visitors to easily tour the site along an itinerary – realized within the
context of the Great Pompeii Project – that connects the most significant buildings and domus from the square called Piazza Anfiteatro to the Sanctuary of Venus. The 3.5 km-long itinerary has ramps, limited changes in height and allows a more comfortable visit experience, not only for mobility-impaired visitors. Also, the archaeological site proposes different experimental projects for other levels of accessibility, such as “silent visits”, guided tours led by specialized mother-tongue LIS speakers for deaf people.

Moreover, Smart@Pompeii is a pilot project – resulting from an agreement between MiBACT (Italian Ministry of cultural heritage, cultural activities, and tourism) and CNR (National Centre for Research) – that proposes an integrated technological model based on IoT technologies which allows management of the safety of people and monuments in both normal and emergency conditions. Starting in 2017, Pompeii is the first Smart Archaeological Park in Italy and in the world. In particular, the Con-Me system provides an electronic bracelet for blind and visually impaired visitors, designed to ensure an accessible and safe visit of the site. Each device is equipped with an SOS button, Wi-Fi and Bluetooth receivers, and a GPS module to check and detect the user position in case of emergency. A grid of sensors is positioned along the path and acquires visitor data, sending them to the central server via access points. Also, the visitor can request an audio aid describing his/her current location. The first twenty prototypes were tested in 2018 and received important feedback. Blind and visually impaired visitors suggested changes regarding the subject of the existing audio descriptive guide. Instead of historical information, they reported the need for an accurate description of the site. Currently, this project is being further developed, considering the results of the test.

The case study of the Archaeological Park of Pompeii is a successful example of complementary systems for the diversified fruition of the same cultural site. A passive signage system with a divergent approach represents the basic structure to which other active and multisensory projects are added, enhancing one another.

5. Conclusion

Cultural heritage is a particular context where design requires an especially attentive and sensitive approach based on the physical, symbolic and narrative characteristics of a location. In particular, its communicative capacity, expressed through wayfinding and signage systems, supports important activities for promotion and storytelling with the aim to engage different targets with different tools. The relationship with the context can determine alternative approaches, such as the integrative or divergent ones, while the interaction between signage and visitor can be either passive or active.

Following the case studies analysis, it can be stated that these four approaches are particularly effective, both for cultural institutions and visitors, when they are intended
as complementary and integrated strategies. The coexistence of various initiatives, even when implemented at different times, can meet the increasing need for accessibility and inclusiveness, highly promoted by cultural heritage sites.

An ideal project can be developed on the basis of a stratified system of information, from a basic level to a high degree of details, which is revealed to the visitor through different means. Fundamental data that are not subject to change – such as information about orientation, navigation and identification of landmarks – should be communicated immediately and using commonly known codes and languages, preferring a passive approach as provided by physical signage systems. On the contrary, in-depth data - such as historical/artistic information, descriptions, critical interpretations and related multimedia contents - can be delivered by digital systems that propose an active approach, offering simultaneously a high degree of updatability and customization. The identity and main characteristics of the location guide the designer’s choice between an integrative approach or a divergent one, taking into account many factors including pre-existing initiatives. It is a virtuous circle where cultural identity becomes dynamics and participatory, encouraging revitalization of the sites and the combination of old and new solutions for an even more inclusive and engaging future fruition.
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Design and the ‘Magical magic’. Disney and history, perceived heritage and shared memory

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Abstract | Disney as a love-brand and a hallmark has doubtless a huge social impact. The aim of the paper is to offer a perspective which considers how much of shared memory and continuous narrative are entrenched willingly, hiding or revealing brand reputation, since the creation of the brand and how much of this is finally conveyed in a Disney artefact, as for its expected quality and design. The essays wishes to reach this discourse through a historical positioning of the research method, as using existing information and observing how the people behave in relation to design, and it is then developed in its conclusion through an open conversation with a Disney designer. In the end, the statement is that as a widespread movement of taste, Disney involvement in design activities is yet to be understood enough and has to be wider taken into account as a social factor and indicator.

KEYWORDS | DISNEY, DESIGN RESEARCH, DESIGN HISTORY, NARRATIVE, SHARED MEMORY
1. Introduction: a material ‘Magical magic’

Disney here meant as *The Walt Disney Company* is something that everyone knows: a brand connected with a variety of offered products, either intended as physical and visual, affirming through their diffusion and popularity that we are looking at a hallmark and a love brand.

Somehow and somewhere, grasped and uttered or not, there is a deep symbolism and a multiplicity of good values behind and besides the scenes. The products are connected with the characters of the movies and cartoons, their personalities and their style. All these objects come to be as part of our domestic and personal landscape, no matter which our age is. This happens with all the ‘things’: it is a natural process: no way we can avoid it (Norman, 2004; Csikszentmihalyi & Rochberg-Halton, 1981).

It is a fact that this huge company has precise rules that go over the discipline of design and instead are mirrored in all possible sides the activities in which the company is interested in. First of all in every marketing document and analysis, Disney is for those who are inside and outside synonym and symbol of safety. In this sense, the brand reputation is considered the best value to be defended with any possible measure. So far, even if being an enormous corporation Disney avoid conflicts, public embarrassments and dangerous situation. This because, recalling a *mantra*, Disney is a synonym of magic or better said ‘the magical magic’.

Thus, it is unavoidable the necessity for this magical power to be sustained - clearly not only with the movies, the comics or the entertainment parks - with the whole production that goes along and around this huge world. And every single activity must be stainless, immaculate. This might appear far from reality to detractors, but let assume a position of doubt and give credit to the idea.

Our society needs certainty: in a time of uncertainty, spinning fast, always more and more influenced by violence and social problems, scholars have somehow pointed the society’s degradation as a product of the excesses given by consumerism. Nevertheless, even if with an impellent green imperative nowadays under the attention of everyone, we live in a world made of objects and artefacts that are not only things. As said by Adrian Forty:

“The same apparent paradox occurs in all manifestation of culture: any painting, film, book or building contains ideas about the nature of the world, ideas which exist in other minds apart from that of the artist, author or designer, but which are mediated through his or her ability to conceive a form or means of representation.” (Forty, 2005, p.224)

Going back to Disney, we choose, parents choose, because Disney and all world around is the representation of something good: good feelings and positive attitudes such as love, friendship, independence, good self-assurance and open-mindedness. Who refuses to be represented this way?
“Of all the ways in which design can influence the way we think, the only one to have been acknowledged widely has been its use to express the identity of organizations. Empires, armies, navies, religious orders and modern corporations have all used design to convey ideas about what they are like both to insiders and to the outside world.” (Forty, 2005, p.222)

When we examine what could be behind, when we relate all these immaterial concepts with the design matter we reach inevitably the idea of the creator Walt Disney, fond of representing what is ‘good’ through a shared memory and historical heritage.

But, what, instead, about the constitution of this quantity of products, again largely intended even here encompassing events and side activities, that nevertheless are called to deliver the same magic and to follow the identical aforementioned rules (Vannicola, 2018) – these latter getting to be limitations in which the designers have to find a way of exploiting their creativity without jeopardize brand reputation and safety? We can since the beginning state that the magical attitude is not already embedded by inner nature, differently from it is perceived, and it needs indeed a long means to interweave stories, memories and all the Disney magic within the final outcome. In this process company constraints are not enemies, but facts with which to deal, the basis from which to depart. (Chimenz, 2019)

It would be naïve to think that only Disney pursues its own narrative through the complex world we have in mind, made of parks, cruises, events and newborn on-demand channel. Regarding this Falcinelli says:

“Companies and entities even before producing goods and services, produce discourses; these form an imaginary about things which, with the English term, is called a brand.” (Falcinelli, 2014, p.121)

Moreover, is appropriate to highlight Disney as an American brand: in fact, as for better understanding it in a design history perspective is proper to observe what Heskett says:

“If Europe stimulated a profound body of design theory that stressed the role of art and craft, in the United States, a new scale of industrial technology and organization evolved by the 1920s and profoundly changed design practices. Through mass production based on huge capital investments, giant businesses generated a wave of innovation products that fundamentally changed every aspect of life and culture in America, with reverberations across the globe. To stimulate markets, products needed to be changed constantly, with mass advertising campaigns exhorting consumers to buy with abandon.” (Heskett, 2002, p.20)
2. Methodology: positioning a historical research

2.1 The whys of writing a design research paper about Disney

The whys of writing a design research paper about Disney first of all arise from a chance. Disney products and animations are part of everyone’s everyday life but coming in contact with a Disney designer is not something that happens every day. From this lucky and fortuitous encounter and from all the discourses that were born around his work and design history research - as my work - the paper took its moves. (Chimenz, 2019)

Far from being invented by Walt Disney, in design history, it is uncomplicated to find material assertion about the importance of merchandising and the care of a bond with customers: all is aimed to lead the users feeling the brand in their lives. It is an old strategy: letting people desiring new things is part of the play, as well as proposing new styles or re-styling, linkable with what has been but new. Heskett, in fact, reports:

“[…] Changes are part of repetitive historical pattern. […] the evolution of a new stage in design does not entirely replace what has gone before, but, instead, is layered over the old. This has been a recurrent pattern throughout the history of design. It not only helps explain why there is such a diversity of concepts and practices about what constitute design in contemporary society, but also raises a
question about the extent to which similar changes will confront us in the future.”
(Heskett, 2002, p.23)

So far, design becomes a discipline able to meet consumers’ desires, in an inevitable bond
with producers and marketing realm. As Forty expresses:

“But although increasingly sophisticated market research may have made designers
better able to understand people’s wants, increasingly sophisticated techniques of
persuasion [...] were making manufacturers more adept at convincing their
customers that the products being offered had been designed exactly to match their
desires. It is therefore almost impossible to say to what extent the needs, that
consumer-oriented design satisfied were felt independently, rather than being the
products of persuasion.” (Forty, 2005, p.220)

If it is true that Disney has been related to religion for the relationship that the brand tends
to build in its meaning and attitude towards customers (Moore, 2001), it is true as well that
this connection has to be sustained and alimented through times. For those who are critic
through the possibility that generally brands truly exert their capability of creation and
innovation and give shape and matter to consumers’ emotional and practical needs Forty’s
world will appear as the truth, when saying:

“Consumer oriented design was highly selective in what it chose to express to
consumers’ ideas and beliefs, with a strong tendency to relate only to those
problems of consumers’ lives that the product concerned stood a good chance of
being able to banish. Naturally, it was very much easier to banish false or mythical
problems than real ones.” (Forty, 2005, p.221)

Affection, when related to something so material and so perishable as a product or a design,
is definitely double meant. Clearly, everything depends on the end-users sight and
disposition towards the ‘object’: this is a concept and a lesson that is now more than ever
largely understood and exploited in the marketing realm. Nevertheless, assuming we all live
a material world, by possessing ‘things’ we do not only state our status but also our feelings,
dreams, credos.

This is why design is not marketing, and from time to time the ability of innovation and self-
narration has to be as spotless as brand reputation, and as farthest as possible from profit.
Bassi, correctly observes:

“In short, goods are produced (destined to quickly become waste or rubbish) in
relation to an ideology of the market and of the company (which has long been more
and more of finance), which is now successful but dated and self-referring to the
conditions of the present, in objective difficulty in the current fluid and
unpredictable global context, with the changed behaviours and needs of society,
consumers and users.” (Bassi, 2017, p.100)

Hence, becoming substantial, designed ideas might lose a part of their initial magic and as
well, simultaneously, they get enriched not only of physical matter and shape but of
something as intangible and unsubstantial like the matter of dreams, of friendship and love.
The same good feelings featuring Disney characters are to be conveyed in their material substance, as Falcinelli says:

“No object today is simply advertising or exclusively expressive: design is different things at different times. [...] An example of this reasoning is the Pixar movie Toy Story (1995), which has an impeccable narrative structure, a poignant staging and there is no doubt that it has radically changed the language of cinema; at the same time, however, it is also a perfect mechanism for selling toys. The one of Pixar is an art that generates and operates in a complex and conflict-filled society, an art that accounts for marketing and advertising, yet this does not subtract anything neither to the mastery of the story nor to its poetry.” (Falcinelli, 2014, p.143)

2.2 How to treat a design research paper on Disney

It is a fact that The Walt Disney Company is such a widespread entity, e.g. indexed in Dow Jones, and a well-know and beloved brand to be within the first fifteen more known ones in the world. But, whilst it could be easily said which is Apple or Coca-Cola product, referring it to Disney is much more complicated and alongside it is intricate expressing, delivering and analysing a yet unfixed identity.
The reality is perfectly expressed by Bassi, saying:

“For a long time the figure of the designer coincided - in particular in certain economic and local contexts (above all Anglo-Saxons or Northern Europeans) - with that of those who provided solutions to problems of different order and grade. In the beginning above all technical-formal and then progressively linked to corporate identity and strategy, up to the needs of the markets and sales. This has configured a specific operating space, but has sometimes weakened the specific contribution and innovation that the designer is the particular bearer of, within a collective, complete and shared process.” (Bassi, 2017, p.101)

In the matter of design, research is yet to be understood in its importance outside the academic enclosure, but maybe it might be easier to explain it with the help of the concept of knowledge. Jonas says, indeed:

“‘Design through research’ assumes that the ‘swapy lowlands’ of uncertainty will be subsequently replaced by well-grounded knowledge. But exclusively scientific research is unable fully to recognize the implication of acting in a space of imagination and projection. The ‘knowledge base position’ needs to be complemented by the un-not science as a method, but science as a guiding paradigm for design, which is being called into question.” (Jonas, 2007, p.202)

The major issues as perfectly expressed by many scholars, over the rest by Schneider is that:

“Design has become a fashionable term that is applied to almost everything. It triggers associations with trendy products, beautiful forms, aesthetic life-styles, the comforts (and drugs) of civilization etc. Design, at one time a luxury and the prerogative of the upper classes, has been an article of consumption for the general public since the 1980s. It is now the mass markets’ favourite word. Design exerts a powerful fascination on people and is seen by many as the art form of our time. Design object enjoy cult status. The old functionalist principle ‘form follows function’ [...] has long since given way to the post-modernist slogan ‘form follows fun and emotion’. [...] Design is a mass-cultural phenomenon that shapes human perception and thus has a powerful influence on general judgement of taste. Products such as baseball caps, blue jeans, Coca-cola, Disney, Hollywood, as well as the various styled images [...] have enduring impact on collective taste the world over.” (Schneider, 2007, p.207)

Beauty and taste seem always to be depending exclusively on personal judgement or social reputation, but it is not so. As Sudjic underlines:

“Fashion cycles are the natural means for one generation to be edged out of the way to make room for another, but they don’t always make for the most reliable of critical judgements.” (Sudjic, 2014, p.42).

In this sense, historians are reliably able to operate criticism thanks to a certain background of knowledge and evidence of recurrent occurrences.
Norman’s idea, for instance, about emotion design, might be found close to the one expressed many years before, from Arts & Crafts Movement designer, William Morris, saying “Have nothing in your house that you do not know to be useful or believe to be beautiful.” (Newson, et al., 2016, p.215)

So far, the issues of opening a novel line of research or developing an existing one faces the positioning of the topic. How to evaluate a multi-faced and complicated problem such as design criticism in the point of view of a historical positioning relating it to Disney? In this sense is valuable to observe what Walker, more generally, says:

“How can design historians gather information about the process of reception? A numbers of methods can be employed. […] Clearly, research of this kind is also done by designers and market research agencies when they are planning new products or seeking to improve existing ones. It is also the kind of work undertaken by sociologists and anthropologists. However, design historians are more disinterested than market researches and more concerned with history than sociologists.” (Walker, 1989, p.182-3)

Walker, in fact, present a series of research methods that perfectly fit design criticism with a willingness of historical point of view, and might be not so common in other branches of design. Within those he proposes, “using existing information” - as they are “crude indicators of popularity and consumer trends” - and “observing how the other people behave in relation to design” - being this latter observation “covert, casual or systematic” (Walker, 1989, p.182) - will be both used as the methodology for this paper, and at this stage for the research.

It is, solely Newson, Sugget, Sudjic stating the importance of the issue for design theory and history in their work, through their words here integrally reported for the unmissable preciseness, that anyhow at a point turns to architecture, not existing a study on design objects, artefact, or visual communication:

“1992. High culture meets popular culture. While Walt Disney (1901-66) has had an enormous influence on popular culture, Disney’s first theme park in California in 1955, where he built a 5/8 scale recreation of an idealized Main Street, was initially met with critical disdain, despite its success. Only more recently has there been a realization that Disney was in fact an expression of urban life that touched an emotional chord for many people. After Walt Disney’s death, the corporation that he started spread around the world. When Euro Disney (later Disneyland Paris) opened in 1992, the distinction between ‘entertainment’ architecture designed by set builders and high culture architecture had vanished. Bob Stern, dean of architecture at Yale became a member of the Disney board, and the corporation worked with Aldo Rossi […], Frank Gehry […], Arata Isozaki […] and above all Michael Graves. By this time, the theme park had broken out of the park and into the world beyond.” (Newson, et al., 2016, p.228)
3. Conclusion: an open discourse

Considering the enormous power that Disney might have on the material culture nowadays, this paper takes into account a novel point of view for being disruptive towards common places and prejudices. The matter is that whether we like them or not, whether we can recognize in them or not the expectably embedded quality - even as an aesthetic or immaterial value - the Disney products offered are everywhere.

What lacks in this perfect world and complicated multi-faced structure? Let go back to the concept expressed in the beginning about the precise will to avoid conflicts and any possible endorsement that could in immediate, short or long term provoke embarrassment to the company. Disney does not take part in any political issue, but inclusiveness has nothing to deal with this (as it is perfectly displayed by the social causes sustained).

Thus, the question is, does it exit a Disney style? The answer is basically no – not yet, would be more correct and proper - but the whys are yet to be satisfied by this simple answer. Would it be needed? The answer, again too simply and somehow naïve, is definitely yes.
In the end of all the observation, three appears on the whole as major issues, maybe sides of a one wider one. For explaining it, a line of thought has to be followed: firstly, it has to be considered what Falcinelli says:

“The tools of visual design are within the reach of more and more people, its issues no longer concern only a limited number of professionals. Having the means, however, is not enough. Huge communicative powers unfold in a few centimetres of desk, but as Spiderman says, great responsibilities derive from great powers. Knowing how to use a software is a small thing, what is needed is, precisely, cultural awareness; because visual design is above all a social fact, where clients, users and designers have desires and intentions. For this reason understanding design is not recognizing shapes, but comprehending who is speaking.” (Falcinelli, 2014, p.302)

Disney is rarely inserted in design history books, maybe being apparently more under the marketing realm, instead of being seen as a design matter but still, as for its impact on consumers’ behaviours, The Walt Disney Company should be treated as a movement of taste, not less important than others, mirrors of the societies that in the past generated them, as for instance the Art Deco was.

As design is about in a variety of realities, as said by Newson, Sugget, Sudjic:

“Design is charted by ideas and movements, by manifestos and chronologies. But it is also about things. Since the emergence of mass production, the world has been transformed by a sequence of remarkable objects. They mark the history of design and of particular type of design – from fashion to furniture – that are in themselves revealing of the tastes of evolving societies.” (Newson, et al., 2016, p.194)

So far, we might observe through Disney’s consumers’ behaviours a number of design concerns, above all the matter of quality. Moreover, has to be considered as true what Schneider states:

“Design involves a lot more than simply creating an attractive world of objects, and far greater attention ought to be given to this fact in the future. Design shapes communication and creates identity. It is a conscious act that aim to create meaningful order, and is thus essential part of our culture.” (Schneider, 2007, p.207)

Thus, following same line of principle and observing what Newson, Sugget, Sudjic report about Noyes initiative to demonstrate how good design does not have to be expensive – some years before Dieter Rams’s Ten Principle, and quoting his own words - “A good design should have nothing which is irrelevant, accidental, or unrelated to the main idea.” (Newson, et al., 2016, p.73) – the matter is evidently not the budget neither the deadline as major issues in the occurring lack of a single identity or an overall perceived quality: the matter is a recognizable identity!

In fact, about Rams, elsewhere Sudjic says:

“Rams made objects that hinted at some deeper meaning beyond their obvious purpose. Making toast, shaving or turning a radio the Rams way was much like
transubstantiation for his true believers. An electric razor from Braun seemed to offer the prospect of turning shaving from a time-consuming chore into a religious daily ritual. A Rams juicer made squeezing an orange into a painless version of the Japanese tea ceremony.” (Sudjic, 2014, p.379)

What can be understood from this? As for its social impact and role, according to the development of this study, it would be needed or desirable for Disney products to have a definite and recognizable poetry of expression, a unique identity – in the past appointed as corporate identity - respecting the origins whilst improving them through the pursuing of the narratives, the old ones along the new ones. Is that possible in a multi-faced brand like Disney is?

Walt Disney’s idea to reach everyone, was profoundly democratic even seen in contemporary perspective; so, activating something transversal, as the huge differentiation of products and services offered, the creation of diverse lines, from the affordable to the luxury one, perhaps causes a paradox perfectly understandable yet despicable, according to Papanek: “The word creativity has become trendy over the last two decades, opening the door to a strange collection of absurdities” (Papanek, 1985, p. 151-2)

In this way design loses its strength and capability to create a new better world. Could this coexist with profit and could the interest of brand uniqueness in multiplicity in all over the world, remain as said by Dieter Rams thorough down to the last details?

To be honest, the answer is greater than the question at least at the beginning, but anyhow a strive for quality and for a determinate sense of belonging, has to begin and then the way will be long but easily reachable. As for its power of being so spread, so well-known and so loved from followers it can be stated that this could be the time for a change in the company. A new beginning, where to bring the same stainless behaviours not only in shapes and visual communications but even in all the possible and multiple facets of design, to better deliver - truly - a sense of magical magic in this world.
Figure 4. Disney (and Marvel) internal façade and corner in a multi-brand store, Toys con Te Roma - Rome 2020, design by DZ, courtesy of DZ, TWDCI. The variety of products within the heterogeneity of characters held by Disney aim to follow doubtless the intents of the brand creator to reach everyone and every family, delivering to all ages a touch of magic, coming from dreams and childhood, but requires a huge design work to control details and developments.

References


**About the Authors:**

_Luisa Chimenz_, senior lecturer in Design, focuses her research interest on objects and production as expressions of social belonging and tools for communicating intangible and immaterial values. The realm connected to the product - largely intended – is investigated as a complex and overall expression of the society ‘accepting’ and endorsing it. Author of two monographic works, she published many peer-reviewed papers in international conferences proceedings and essays.

**Acknowledgements:** The author wishes to thank Davide Zannetti for letting the use and providing the images of the original design here published and pictured. On behalf of the designer, and along with him, the author wishes to thank The Walt Disney Company Italia, Notorious Cinemas and Toys con te for letting once again the Magic come true.
Abstract | The evolution of human needs gives design not only the opportunity, but also the difficult responsibility to solve the puzzle as good as possible. God is in the detail. That’s why Design in architecture is the step towards perfection. The design industry presented by fashion, furniture, products is a next level in a design sense. Design in tech world is contemporary and evolving. But we must possess design thinking to create something new, valuable, useful. After years “Searching for The Self” and despite the technical evolution, we must not forget, that all of this is human made. Almost everything was invented so far. The individuality, that has been crowned, reaches to the identity, waiting to be revealed despite the globalization. Strange but true, we explore history to create future. That’s why we must learn from the past and evolve, not just to swim downstream, but rather to create the stream.

KEYWORDS | HISTORY, INDIVIDUALITY, HUMAN NEEDS, IDENTITY, SOCIETY
1. DESIGN CULTURE OF LANGUAGES

A language gives us individual units and the possibility to combine them in various ways. As a result, we create different meaning, express different things, give different signs. The headline is inspired by the similar pronunciation of different words. Let us see the transcriptions:

Design [dɪˈzaɪn]     Decide [dɪˈsaɪd]     The sign [ðə] [saɪn]

In this example we are using just one language, but it is remarkable that similar connections could be seen also between languages. The meaning stays even written with different letters. This is the design truth – creations could be similar, but they affect everybody in a specific way. Yes, it’s all about creation and humans are responsible for it.

Another word for creation is design.

Sometimes the simplest things are the hardest to explain. The different tracks presented in this conference are an indisputable proof. Design is not only thinking, it’s a revolution, resilience, proximity, multiplicity, making, life, a language, it’s artificial.

I’m researching design as an answer. An answer for different and important questions.

Why should we design?

How to design?

What’s the goal?

Is design a rational product by our irrational desires?

What’s the most important – function, technology, empathy, embodiment, inspiration?

Which sign are we going to decide to give to Design?

Figure 1. Life is not a dot “.”, it’s a line “___”. Every step consists 2 foot positions – the first foot is going to the Future, the second is staying in the Past. The body is embodying the Present.
Figure 2. And then the dot becomes a line. With a direction.

So many years people are searching for the truth. And they have found only their truth. But the desire is half the battle. That’s why science exists. That’s why we’re trying to do better design, to know more.

From design, as the core of architecture, we expect to combine the aspiration and inspiration of art with an utilitarian function. Design as a noun (a product) or a verb (creating) is an individual unit of interior design, which is the intimacy of architecture, living in the world of urban design. That’s why the truth about design applies to the other “family members”. But they all exist in the world of dynamic ever-changing societies.

Figure 3. Design as a core.

The world needed all kinds of languages through time: alphabets, movements, symbols. To become understood. Design is an alphabet with increasing number of letters – it’s not just about creating, let it be meaningful.

Figure 4. From left to the right: a compilation of The Glagolitic script, The Bauhaus logo, suprematist composition (Blue Rectangle Over The Red Beam) from Kazimir Malevich, The Shukhov Radio Tower (Russian Constructivism), Greek Mythology symbols.
The language is a way somehow to send and receive information, to express and to impress, to exist. An individual could be supremely understood if he’s able to find language with others. And as was noticed and announced: “Individuality is the link; cooperation is the chain. You can strengthen the chain only as you strengthen the link.” (Jordan, W.G., 1909, p.3)

The signs that we create through design will be key points of tomorrow. Their meaning will be different for distinct people. But we are part of a society and we could create directions for the future.

2. Society shapes design or design shapes society?

The birth of the idea of a consumer society is well explained by Paul Mazur, a leading Wall Street banker working for Lehman Brothers in 1927:

“We must shift America from a needs- to a desires-culture. People must be trained to desire, to want new things, even before the old have been entirely consumed. [...] Man’s desires must overshadow his needs.” (Mazur, 1927, Harvard Business Review)

Of course the corporations welcomed the following mass production. The greatest contribution comes from Edward Bernays as a central adviser, known also as “the father of public relations” and Sigmund Freud’s nephew, with his idea for the dome “Democracy” at the World’s Fair in New York in 1939 – showing the link between Democracy and American business. The General Motor Corporation was responsible for the construction and the public admired it. After searching and exploring “The Secret Self”, one of the leaders of the Human Potential Movement, the psychologist Abraham Maslow, was given a special task from SRI International (Curtis, 2002, Docu-series 1, 3). As a result he published the “Hierarchy of needs” – the well-known pyramid constructed on a base of physiological needs, and proceeding upwards through safety and security, love and belonging, and self-esteem, before topping out with self-actualization. In the next paragraph will be discussed the evolution of the pyramid towards modern people. The differentiation of the individual from the society leads to need of variety of products. The goal is to meet the specific needs of different people. We are still witnessing this today.

“It was in a sense the triumph of the Self. It was a triumph of a certain Self Indulgence. A view that everything in the world and all moral judgment was appropriately viewed through the lens of personal satisfaction. Indeed the ultimate ending point of that logic is that there is no society. There’s only a bunch of individual people making individual choices to promote their own individual well-being” (Robert Reich for Curtis, 2002, Docu-series 3)

History guides and restricts design. We’re still part of this consumer society. But this historical trend started differently in other countries.
My PhD research is focused on the path of Bulgarian design. That’s why after the historical facts about Design as driven force for satisfying and controlling the society in the United States, in a short retrospection I’m going to present what society needed and how design helped in the XX century in the specific historical context. Five hundred years (1396-1878) Bulgaria was under Turkish slavery. The religion with the architectural symbols – churches and monasteries conserved the Bulgarian culture and the faith for liberation. The crafts are empowered at most with woodcarving – iconostasis, iconography, interior elements and furniture. Nowadays only few monuments of woodcarving from the Second Bulgarian State (1185-1396) are preserved. Two of them are in Monastery of Saint Ivan of Rila (known also as The Rila monastery; on the World Heritage list of UNESCO) - an entrance door with exquisite wood-carving and wood-carving throne. Interesting to mention about the throne is that the design repeats the arches from the monastery building and shows impressive details for handwork. On the other hand, the interior of a Bulgarian house then was so minimalistic, that it won’t be strange to compare it with the Japanese conciseness. Later The Bulgarian National Revival (sometimes called the Bulgarian Renaissance) is a scene for many crafts. Some of them and their present interpretations will be described later in the article.

The beginning of the XX century was like a new blank page – the birth of The Kingdom of Bulgaria. Major public buildings from famous Bulgarian and foreign architects were built – the Bulgarian National Bank by arch. Ivan Vasilyov and arch. Dimitar Tsolov, “Bulgaria” complex by arch. Stancho Belkovski and arch. Ivan Danchov, The Sofia Bath by arch. Petko Momchilov with façade ceramic elements, produced in one of the first factories “Izida” 1908-1913 (Author team, 2016).
As you see, design existed as an individual unit for interior architecture and as a product from the first workshops and factories - founded by Czechs, Hungarian, Armenian and Bulgarian people, who recognize Bulgaria as their place to live and develop (Parvanov, 2008).

After the change of the political system – the birth of The People's Republic of Bulgaria (1946-1990), the production capacity increased. The state founded new factories, the education was targeted to professional skills, new design centers were also founded (Author team, 2016, p.53-54):

- Central Institute of Industrial Aesthetics (1963)
- Center for new goods, packaging and information (1971) before named as Assortment cabinet (1964)
- Center for New Products and Fashion
- Institute of Furniture and Furnishing (1971) before named as Center for Research and Development (1966)
- Center for Research and Experimental Packaging (1967)

After the democratic changes in 1989 the Republic of Bulgaria again flips the page to start over. The contemporary environment for design development is characterized with private companies and their interests. The state structures step back, many of them no longer exist. In the last decade Bulgarian specialists are actively involved in the world market. As designers they want to answer questions of the modern society. That’s why the impact is no longer local and the awareness has almost no boundaries in this technological world.

Thank to Ezio Manzini’s definition (2015), influenced by Anthony Giddens (“The Consequences of Modernity”, 1990) this timeline looks comprehensible:

“...today, in many western (traditionally rich) countries, the present economic crisis has been compelling more and more people to learn how to live, and if possible to live well, while reducing their consumption and redefining their ideas about well-being (and work). At the same time, the majority of people in fast-growing
economies are driven to shift quickly from their traditional socioeconomic contexts to new ones, which we will refer to as “modern”: they have to radically redefine the way they live and their ideas of well-being.” (Manzini, 2015, p.11)

Even though Bulgaria is not an example for a top fastest-growing economy, it is one of the 16 countries with emerging and developing economies (data from World Economic Outlook Database, 2020). Supported also from my research data – this quotation highlights why the current success search has so many diverse faces.

3. “Be part of...”

After searching and exploring different selves, in conclusion I’m heading the present design trend “Be part of...”.

This trend applies not only for Bulgarian designers, I’m sure you can find the signs in your national industries, too. Strange or not, the individuals want no longer to think only about themselves. They want to give their own individual contribution by solving a problem or filling the missing. This can be successfully correlated to the social innovation as a main driver of change (Manzini, 2015, p.26).

3.1 Human as a part of the Globe

The opportunity is just around the corner. I’m going to mention just three examples for Italian products, designed by Bulgarians. The first one is the chair “Lastika” by Velichko Velikov for Lago, as a result from a workshop in 2010. The second is the wall mounted washbasin “Tatoo” in Corian® with stainless steel towel rail by Elia Nedkov for Rapsel. The third is the slimline vertical radiator “Flaps” by Victor Vasilev for Antrax. Boundaries are blurred. Nationality is not a stamp, but what could it bring to a new product? This will be discussed later.

3.2 Human as a part of the Earth

We are existing not just for ourselves, but as a part from a bigger plan. The already Maslow's Hierarchy of Needs has been actualized to the modern thinking of human place on the Earth.

“The most important takeaway from this quick pass through the collection of hierarchies is the fact that they are all related. Each level of biology requires a healthy and stable lower level to provide the ingredients for its existence. Each level also needs a healthy and stable level above it to provide a durable habitat for its existence. And the top-most level of evolutionary biology can only kick off (as far as we know from the history of Earth) after the formation of biochemistry in the lowest level. In other words, no matter how much you focus on one seemingly individual tree, it is actually part of an interwoven forest of life.” (Gibney E., 2017)
The realized responsibility after the active discussions about the climate change, about all kind of pollution (air, water, light etc.) affects design. A description of “eco”. A great response to that, are the products of Playground Energy, awarded with Red Dot Design Award in 2017. The generating energy playground products are already installed in many countries. The leading designer Ilian Milinov, who won many design awards, is also recognizable by Seattable - comfortable seat and table in one piece of furniture. The last surprises with its simplicity and double function. And when we research materials, not products, the Bulgarian start-up company BioMyc offers a local produced alternative to Styrofoam for packaging. A great addition is LAM’ON - a 100% biodegradable laminating film for print. It is toxic free, optimised, competitive. It offers the same results, it is used on the same machines, and is offered at the same price range as the currently used laminating films. It is time to pre-order your sample.

3.3 Human as a part of the technological society

After destroying the real society, now we’re creating a false new – our web avatars can travel around the world, shop online worldwide, disrupt the distance. Our new homes are profiles with determined shared information. Everything is one button away. We could benefit the new ideas – through crowdfunding – an interesting distributed financial opportunity. For example, the Bulgarian product Halfbike was funded at Kickstarter. The promise to “Bridge the gap between man, machine and dance” suited well – this is their third successful Kickstarter campaign. Using new technologies is also a modern choice for the Bulgarian designers. The 3D printed origami bottle Hyperfold is already on the market. In 2015 was held a contest called “LampiON”, the collection “Hex shade” by Voood won the first place – parametric modified 3D printed pendant lamps. A great contribution to the methodological explanation of these modern examples, categorized as distributed fabrication could be found here:

“The result is worldwide experimentation in small-scale, high-tech design and fabrication system capable of supporting new forms of open design and networked micro factories (such as the ones proposed by FabLabs and by maker movement). We can add that the distributed production idea is migrating from the area of high-tech fabrication to traditional craftsmanship and small and medium-scale enterprises, revitalizing them and giving them a new perspective.” (Manzini, 2015, p.19)

A wonderful prelude to the next category, which is closer to craft in the historical understanding.

3.4 Human as a part of History and Culture

“The most fascinating product solutions are those which reveal a cultural reinterpretation of the Arts and Crafts movement, where digital production tools
continue to focus on the way things are made and not the formal outcome as such.” (Paris, 2016, p.75)

“Carpets Making - The tradition of Chiprovtsi” was listed as Intangible Cultural Heritage from UNESCO. This ancient Bulgarian handicraft of carpet making is searching for its Revival. In 2016 during One Design Week in Plovdiv was presented the project CHERGODEIKI- “as a part of the Baba Residence – an initiative against depopulation of villages and for sharing of traditional knowledge, which old people there still preserve. This is the knowledge about working with natural materials, and the knowledge of hands and their movements” (One Design Week, 2016). Three years later, again in Plovdiv, which was European Capital of Culture in 2019, and again in Kapana Creative District was performed “Open carpet atelier”. This time the target group were children. These workshops don’t give an opportunity for mass production, but they aim to attract attention to the historical and cultural features, which we are going to forget.

*Figure 7. Examples for carpet making in Chiprovtsi, traditional forms and colors.*

Interesting analogy is the tribute to Romanian shepherd stools by Romanian designer Dragoș Motica for the 5th edition of the Romanian Design Week (Domusweb, 2018). These stools were popular in Bulgaria too, but the society doesn’t appreciate them as a typical design heritage.

A step forward is the “living minimalism” of Faina Design, the brand founded by Victoria Yakusha reinterprets techniques and symbologies of Ukrainian material culture (Domusweb, 2020).

### 4. What’s next?

The coin always has two sides. “Be part of...” is a vision with certain proof of evolving. However, the present generation is a challenge for psychologists, too.

“They are not only the biggest generation we've ever known but maybe the last large birth grouping that will be easy to generalize about. […] Those rising micro
generations are all horrifying the ones right above them, who are their siblings. And the group after millennials is likely to be even more empowered.” (Twenge, 2013)

Where is the mystery? This approaches aren’t wrong. But we aren’t completely able to predict the future of design. Because society is changing and what a product embodies is a personal experience.

Interesting example is given here:

“For example, the meaning of a cup is not just some abstract concept specifying a defining set of features that constitute it as a cup. Rather, the meaning of a cup is all of the experiences, ences, both actual and simulated, it can afford us. [...] However, the meaning of the cup is not just what it affords us by way of physical perception and motor interaction, because it also includes the social functions of cups, given our cultural values and practices surrounding the use and significance of various types of cup. Finally, in addition to this public and shared meaning, there will be each individual’s own personal past experiences with cups, and perhaps with this very same cup which now sits before him or her.” (Robinson et al, 2015, Kindle Locations 415-421)

A similar hypothesis towards designers is also valid - they include a special "truth" about the function or the form of the product. The individuality of thinking results in specific characteristics and point of view. The sympathy for style also meets this individual choice:

“Some will prefer Mies van der Rohe, others Art Moderne lines, others Gaudi’s organic ecologies, and still others Gehry’s playful postmodernism, because of the way each of these markedly different qualitative unities affords us dramatically different imaginative experiences for how we can engage and interact with those structures.” (Robinson et al, 2015, Kindle Locations 552-553)

Same is with the observing of a design product. Same truth. Different scale.

Only with the right answers we would be able to create something innovative and unique. Stop doing without asking questions, without solving problems, without design as thinking and of course creating than just producing as a result: “Will it pay? Is it popular? Is it successful? [...] Is it right? Is it true? Is it helpful?” (Jordan, 1909, p.6).

The history has its powerful statements. One of them is made by Walter Landor "Products are made in the factory, but brands are created in the mind". But how to connect minds? Through the language of ideas and through design thinking.

The science is not so distant from design and architecture. The new goal is not only to innovate construction, but using the scientific methods of neuroscience and psychology to understand better the idea of creating. After we could visit every part of the world – in internet or in person, be whoever we want, possess almost everything, what could be the next step? It’s already happening.
Go back to the roots and make the Utopia “Rebirth the crafts and cultures through design in a technological world” come true. The technology could help us, but in fact we’re a link between Nature and Technology. Our individualities, in the pure and specific sense that William George Jordan described in “The Crown of Individuality”, are the key point.

This is my truth.

“Optimism is the sunshine of the soul radiated in action” (Jordan, 1909, p.46)

So, it couldn’t be so difficult to turn the flaws into strengths.

It’s just one 45 degree rotation.

In conclusion, Ezio Manzini inspires me to share with you this quote:

“...since culture is bound to context, as it should be, we can say that it is an Italian contribution to an international conversation. That is, a contribution that starts in a well-defined cultural context.” (Manzini, 2015, p.5)

In this line of thinking, my shared thoughts and study work may be a Bulgarian contribution to this international design conversation. I hope it could be.

Today the language barrier is no more available. Why should a design barrier exist?

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Designing the Gross.
In search for social inclusion.

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Abstract | Numerous researches dedicated to the gross exist in psychology, focusing notably on the sense of otherness behind this reaction of disgust and fascination. Furthermore, many grotesque works of art have been achieved, in particular in the XX and XXI centuries, in attempts to challenge prevailing social and moral models. Contemporary design practices, inheriting from a universalist desire of modernism, presuppose a single, unitary identity built according to dominant social constructs. They are nonetheless questioned by the recent emergence of speculative design projects employing materials traditionally deemed disgusting. The present research examines from a material semiotics stand the gross at play in queer & feminist art and in recent speculative design works. As these works show exemplary potential in questioning moral a priori, this research sets them in discussion with a design research program conducted by NGO design studio thr34d5 on kombucha pellicles and their craft. The theoretical and experimental analysis presented in this research form an understanding of the role that material semiotics combined with the gross can endorse to leverage design in matters of social inclusion and impact.

KEYWORDS | GROSS, OTHERNESS, KOMBUCHA, DESIGN THEORY, MATERIAL SEMIOTICS
1. Introduction

Wet, slimy, sticky, mouldy, rotten, spoiled, decaying, smelly... Gross. The construction of taste as what is commonly acceptable is built throughout centuries of collective memories. In present times of peak in social inequalities and societal need to recognise and give agency to situated communities, it is this shared memory that is urgent to understand and seize methodologically. The modernist globalisation of consumption habits shapes most of our societies into clean and smooth realms, with a universalist goal of standardizing our ways of being, our habits, our instincts. This universalisation that pervades in the design of everyday objects and services keeps pushing further away identities that do not fit within the norms by instrumentalizing moral into aesthetic forms and technical functions. This resorts into accidental or strategic suffusing of new designs with a semiotics of dominant models – principally for dominant classes privileges continuation, whichever they are.

Gross phenomena nevertheless resist, but rendered marginalized as they illustrate behaviours that defy dominance. Gross as considered here is the combination of disgust and fascination, defined respectively as the “experience of intense physical dislike for an object or a situation” and the “urge to explore, investigate, or to understand something” (Fokkinga & Desmet, 2013). It is in itself the subject of many studies in the field of psychology and has become an activist symbol in art and emerging xenodesign\(^1\) practices as a way to question the construction of identities. Beyond fetishism, mobilizing this emotion is a call for otherness. Accepting the other, be it a person that endorses a different culture or a non-human being, is to agree to confront ourselves to what is uncommon, to what is beyond frontiers and control. The semiotics behind the works resorting to the gross contribute to form a relational aesthetic opening a discussion on the role of collaboration in the design methodology, a defining quality at stake in this study.

The present paper introduces a design research program conducted by NGO design studio thr34d5 on kombucha pellicles. This microbial community was chosen as it is both alive and unsettling in its materiality, and presents the benefit of having a low cultural anchorage. From the perspective of material semiotics, this study discusses the holistic sensorial approach of grossness in the making of kombucha pellicles and presents the potential that lies in this emotion and semiotics focused method for envisioning a richer, more inclusive and impactful practice of design.

\(^1\) Xenodesign is a term constructed by using the xeno prefix, which sits in the context of speculative realism related theories. It aims at describing techniques of alienation as productive ways to think about the unknown (Shmeer, 2019).
2. Gross is not grotesque

2.1 Transgressivity as a project

“Disgust is an ideological response to something that is offensive to the self because of its nature or origin” (Rozin et al., 2008). While neurological studies aim at evaluating the innate part at play in our disgust reactions (Moll et al., 2005, Toronchuk & Ellis, 2007), a wide literature investigates its mechanisms of acquisition. While often criticized for their static analysis that does not taking into account the evolutions of disgust in a given culture or individual across time, and the possible accustoming to initially revulsing things (Lupton, 1996), Mary Douglas and Pierre Bourdieu have demonstrated that the sense of disgust is a social construct (Bourdieu, 1979; Douglas, 1966). While Bourdieu offer an analysis of the relationship between class, habitus and taste, Douglas has shown that not only does the sense of disgust vary from a cultural context to another, but it is a tool for maintaining social systems and boundaries – a remembrance of biopolitics in Foucault (1972). “Feelings of disgust function to dignify humanity by allowing humans to put themselves above the animals that are deemed as inferior” (Goldenberg et al., 2001). Disgust crystallises the will to distance oneself from creatureliness; and we witness how this quality is being instrumentalised with intent, for instance in attempts at controlling one’s body shape (Angyal, 1941, Rozin et al., 2008., Goldenberg et al., 2001). If we are to extend the argument, this distanciation is not only from what is animal, but from what is other, made foreign. The mechanics of it justify a rejection of what is not deemed moral to the profit of what is, as seen in resources exploitation and in formation of castes. It ties back to a larger phenomenon of exclusion, discussed in Foucault as instrumentalized in the production of truth and subjects’ control. A central matter since his early works, Foucault analysed one of the apparatuses at play as the partaking of mental disorders in the process of legitimising discourses, proceedings to the exclusion of subjects deemed mentally ill to moral margins.

The elaborated body of work provided by Foucault set in perspective with our present object of inquiry, the gross, highlights the process of construction of our social identities through alterity. In an ever-expanding world of multi-cultural encounters, the project of a universal western moral meets raising defences for the recognition of situated identities beyond fringes or spectacles. Design at large, as the discipline of the construction of the synthetic world – not to say cosmos – can and need to seize the opportunity of recognizing its importance in the mediation of everyday interactions, thus becoming instrumental in building a togetherness around this alterity.

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2 “Grotesque” is a French word that designates both the baroque mobilization of the gross in art, and a ludicous act.
2.2 Mobilizing the gross

The disgust is presented in psychology as a form of construction of our societies; how do these unmanageable phenomena perform in the construction of the self of the social life? A major part of the construction of our identities is mediated through our senses (Friedman, 2016). There are many forms of solicitation through the senses, of models that we have tested, inherited or accepted as part of our individual cosmos. Challenging those models helps us to better contour ourselves by sharing experiences of the construction of reality. Grossness represents then a negative space - it is part of this photographic impression of our social constructs for what is other, what we have been taught to fear and question, what does not belong. In times of uncertainty and divide among cultures, confronting fears is a movement against the grain, against borders to identify liminal spaces. To question those borders is to accept for one to change themselves, to challenge their identities. The fascination at play towards disgust is a call to embrace and adopt the fear of the unknown to try evolving our understanding or reality construction. We are other to others; everyone is a stranger in a quest to become object of others’ fascination - to be adopted as part of a social group. Designing with the gross is one way to open up a shared platform, a public space for collective identities to advent.

Throughout history, arts heavily relied on triggering this mixed emotion for the viewer to put dominant models into question and enquire on the definition of identity. Tackling unravelling emotions calls for a discussion about censorship. As a globalising universalist moral censorship, violent and radically unifying in the form of modernism, some artists engaged in pushing the barriers of what is deemed acceptable. Questioning axioms of dominant cosmogonies, Duchamp’s Paysage Fautif (1946), Serrano’s Piss Christ (1987), Quinn’s Self (1991) or Delvoye’s Cloaca (2000), form an ensemble of provocations stirred by using “abject media” (Kristeva, 1980): semen, urine, blood, faeces. The mechanism of these works of art relies on the fascination from these various contexts - sometimes religious, always linked to our collective identities - and questions the conventional material semiotics by a raw transgression (Law, 2008).

Challenging the legitimacy of dominant models with the help of disgust and fascination is an antimodernist stand. The hierarchical, controlling relationship to nature is predominantly questioned by resorting to the gross; among most famous contemporary artists, Damien Hirst or Pierre Huyghe regularly mobilize living entities, including some usually perceived as unsettling. Picture venomous snails, flies, bacteria, and even cancerous cells. Huyghe articulates gross, life and otherness together in his pieces - notably in After Alife Ahead (2017), Colony Collapse (2012) or Untilled (2013). While he advocates for his installations to be self-organized systems growing on their own, “indifferent to the public”, the fragile equilibrium reached between artificial and natural components in his works acts as a call for reassessment of our place in the world for the viewer (Russeth, 2017). It is with rotting flesh and food installations such as A Thousand Years (1990), Mother and Child (1993) or Let’s Eat Outdoor Today (1991) that Hirst develops a reflection on “human attempts at isolating and..."
retrieving horror from our lives” (Ghenasia, 2017). His memento mori recall the association demonstrated between death awareness and the feeling of disgust (Goldenberg, 2001), as he underlines the violence of our relationship to flesh, the severance of our relationship to nature and our inability to relinquish control. Since the 1960s corporeal fluids and normatively gross body details have been reappropriated by queer and feminists’ movements to protest universalist injunctions by political oppression and physical standards of domination. Feminist art, with works such as the Read My Lips campaign (Zoe Leonard and the collective Gang, 1992) or the especially extreme Rhythm 0 by Marina Abramovic (1974), exposes the control of women bodies and question the role they are conferred in patriarchal societies through aesthetics of shock (Martinique, 2016). Such works helped perceive body norms as particularly strong mandates in contemporary societies, thanks to radical meanings they suggest by instrumentalising materiality. Contemporarily to feminist art, since the 1920s a queer art has been emerging and recognized for its artistic value, but also for the collective conditions of its emergence - challenging our perception of the artist as a masculine isolated genius for art as a social activity (Alfonsi, 2019). Queer art is characterized by its visceral challenging of rules aiming at normalizing identities. This current in art is activist, but beyond a political banner, it engages in making visible public claims for a revised humanism. Questioning one’s own being through themes such as hybridity, mutations of the body, and the self, queer artists are illustrative of a liquid modernity (Bauman, 2000) and of a societal need to leave space for a variety of identities and cultures. Mobilizing disgust in art thus shifts from a grotesque staging of flesh & fluids to more subtle issues of identity recognition and discourses acknowledgement in the tradition of humanism critique.

2.3 Liquifying design

Grotesque in design has been more scarcely used and examined, with the exception of (Fokkinga & Desmet, 2013) and of children toys (Livingston, 2019). Speculative design increasingly relies on provoking a mild feeling of disgust, in a similar fashion to the works of art previously cited, in order to trigger a long term reflection on the contemporary hybridization of identities; some illustrative works are: Sinae Kim’s Urine Ware bowl designs shaped as urinary bladder and using urine as a glazing material, Studio Basse Stittgen’s blood related series of objects made entirely out of human blood - some pieces of the series even being made out of HIV positive persons’ blood -, Studio Nienke Hoogvliet’s Waterschatten lighting, table and bowls made of used toilet paper. In these three cases, the sense of disgust coming from the materials is a reminiscence of abject media as used by artists. As an answer to the analytical culture infused in modernist design, we find again in those illustrative works a mobilization of materials that are morally unacceptable. Even though the productions are delicate and aesthetic, they embrace disgust and make it fascinating.

In designs are encoded contemporary beliefs, contemporary cosmogonies; Slavoj Žižek illustrates this concerns through the phenomenology of toilets: "We have such a multitude of
the toilet types because there is a traumatic excess which each of them tries to accommodate - according to Lacan, one of the features which distinguishes man from animals is precisely that, with humans, the disposal of shit becomes a problem.” (Žižek, 1997). Design – as craftsmanship and in its lineage – has become a principal vector for the mediation of phenomena through technics, and its practice has recently evolved as a new form of crafts of affordances, an engineering of virtual and/or material interfaces to phenomena. Design is never neutral but an artefact of an ideology, of a sociotechnical system it belongs to. As design was born with fashion-led planned obsolescence, we understand that the conception of objects and services can be driven from semiotic concerns that go further than optimizing their supply chain and interfaces for financial purposes and competitive risk mitigation (by green washing, for instance) but need be appropriated to build a rich and inclusive practice. Thinking design practices as neither enslaved to financial purposes nor elitist in their speculative qualities, but meant to positively impact situated communities and empowering to users, it represents a massive negative space around current practices.

Xenodesign is an emerging critical practice inheriting from speculative realism schools of thought. Explorations in this field focuses on decomposing the genetics of design systems so to identify their principal qualities and hack them, by replacing marble by coagulated blood for instance. Xenodesign artefacts situate in the context of hyperobjects, challenging socio-cultural events such as sustainability, AIDS, or gender inequalities (Morton, 2013). If design is an act of negotiation (Rigobello & Gaudillière, 2019), then xenodesign is an activist act towards social inclusion. It is an answer to aforementioned liquid modernity, which characterises by an increase in the rate of change of contemporary institutions and beliefs, which is to say that are subjected to an ever-decreasing lifespan. They therefore cannot “solidify”, leaving individuals to have to constantly reassess their environments, decide and act in a fragmented way. This indeterminacy and unpredictability reflect on our ways to live and act upon the world, and ultimately on our ways of being. The western universalist project that is conveyed by capitalist led designs is thus being questioned by xenodesign practices, hence highlighting the need for a recognition of multi-cultural coexistence through what mediates our social life: objects and services.

Similarly to the critic that Alfonsi (2019) builds on art history analytical traditions biased by the masculine idea of the isolated genius artist, xenodesign practices often find an antimodern alternative is its modes of production. Collaboration in craft is found in queer theories, and in inherited artistic practices as with Enzo Mari and Sol Lewitt, or in Tom Sachs and Thomas Hirschhorn, to name a few. This change in modes of production is also nested within Donna Haraway idea of companionship, which drives xenodesigners into a struggle to build pathways to a co-dependence with non-human beings, reminding of the search for extended collaboration. Such a methodology we recognize as radically inclusive: one that is offering space for an expression of the identities, emergent, community centric (Rigobello & Gaudillière, 2019). Becoming less and less viscous, a xenodesign is emerging under collaborative and vindictive forms. In fact, the millennial or centennial traditions we
previously relied upon for a social belonging, such as sharing a family recipe that is passed on over generations, tend to fade away as they are being partially replaced by faster changing values systems embedded in everyday designs. Novel craft practices as Do-It-Yourself and Do-It-With-Others in the domains of electronics, biohacking, mechanics and woodworking as seen in fabrication third places demonstrate means of production that valorise the social life of designs through open practices. On the contrary, examples of instrumentalization of these social ways of being are found in major social media businesses, or open research platforms relying on a needed belonging to contribute to a collective constructive project.

Design represents a tremendous yet dormant potential of methodological improvements that can foster a sense of togetherness in alterity, that is by promoting a “repository-forking” strategy allowing for the co-existence of multiple yet situated genetic and memetic evolutions for objects and services. On another level, and as is manifested in open-source platforms, efforts need to be put towards favouring a holistic approach to design supporting social inclusion and an increase in knowledge transmission affordability; in haptics belongs a relay to enrich the wideness of points of entry to a shared idea, as illustrated by the gross.

3. A craft of all senses

3.1 Kombucha as a canvas

Determined to advance the comprehension of the social inclusion potential lying in design disciplines, NGO design studio thr34d5 decided to test out hypotheses about the gross in the presence of a complex of micro-organisms and/or material system that have a low cultural baggage: kombucha.

Symbiotic Cultures Of Bacteria and Yeast (SCOBY) are co-existing communities composed of microorganisms – kombucha is part of this group. Kombucha is composed of a zoogleal mat grown aerobically by *Komagataeibacter xylinum* bacteria from a sweet tea solution (designated as “the pellicle” here), which protects from contamination *Zygosaccharomyces* yeasts feasting in the sweet tea solution, while using ethanol produced by the latter to produce the mat. The fermented solution eventually turns into a sought-after probiotic beverage for humans. The fibres of the pellicle are composed of bacterial cellulose, which is about a hundred folds thinner than the fibres found in plant cellulose (Schurz, 1980), making it a competitive material to synthetic polymers. Kombucha has a mythical origin. It traces back in Central Asia (eventually from Manchuria, China), and has apparently spread from this region over a period of approximately two thousand years.

The kombucha pellicle can be dried out, obtaining thus a material similar to leather, textured, that can be used in a comparable fashion to craft objects. Several designers or engineers have worked with this material, making garments (Suzanne Lee, Scobytec), packaging (Elena Amato, MakeGrowLab) or small leather goods (Echocella). In continuity
with peer-to-peer sharing practices sustained for many years around the preparation of the kombucha beverage, designers such as Suzanne Lee have developed their work under Creative Commons licences and shared their expertise in open-source organizations such as biolabs. The information shared on kombucha pellicle and its production focuses nonetheless on the growth recipes rather than on other aspects of the process for instance, drying and post-treatment methods. Furthermore, many companies have recently formed selling the kombucha beverage, and product designers are launching commercial initiatives based on kombucha leather goods. A difficulty subsists to industrialize the production of kombucha pellicle: while designers have conducted research on the material, its production process, possible textures and colours, and crafted objects, there are little replicable initiatives due to *K. xylinum* phenotypic expression and variations from strains’ origins in yeasts and bacteria ecologies. Internal research exists in the kombucha drink industry, with a specific focus on drinks quality and users experience rather than pellicle production. In general, little academic research exists on the culture of the pellicle, but for the cultivation of bacterial cellulose in the life science industry (Rajwade et al., 2015), food applications (Lin et al., 2020), marginally in paper production (Zhang et al., 2019), bio-based sensors (Wei et al., 2010) or functional aerogels production (Zhen-Yu et al., 2014).

Our interest lies in the low cultural anchorage of kombucha pellicle; as there is only a developing set of craft practices developed around the SCOBY, and especially towards drinks production, we are in the presence of an alien material. As no cultural practices are tied to the pellicle yet, it favours its appropriation by anyone, turning it into a peculiar means of experimenting otherness in design.

### 3.2. Crafting for otherness

thr34d5, a design research NGO, has been developing an inclusive design practice since 2018 through its kombucha Applied Research Program (kARP). Initially focusing on the alteration of the kombucha cultivation process to build an understanding of the pellicle growth, researchers involved in the kARP tested various compositions of the cultivation mix in an attempt to make the process even more sustainable by replacing the sugars provided as nutrients to the SCOBY (glucose and fructose sources). Tea polyphenols are also key to kombucha production, especially as they provide nitrogen to the bacteria. But as tea has an important environmental impact because it is only produced in central and south Asia, our researches also look into replacing it with vernacular organic food wastes as a mean to lower it. Among other areas, research has been conducted on colours, growth containers, scale of production, and waterproofing of the dried pellicle. Experiments are documented on various social media\(^3\) and a git website\(^4\). The adventurous DIY approach, led by a collaborative will to

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\(^3\) Applied research traces can be found on https://instagram.com/thr34d5, https://facebook.com/groups/kombuchafr, and https://facebook.com/thr34d5.

build an emergent craft practice of this alien companion, led to the discovery of a variety of material languages, textures and behaviours. While welcoming new researchers in thr34d5’ workshop and at workshops animated by thr34d5, the sense of fascination and disgust - to say grossness - that fresh kombucha pellicles trigger is particularly worth noticing. The candid approach to the material in previously mentioned experiments uncovered a wide variety of fascinating textures.

One thing that is learnt from experimenting with biological companions in a spirit of inclusiveness is the respect of its agenda. There is a necessary discussion with the material. Kombucha does not do what we want, it rather agrees to collaborate with us. Kombucha is ours as long as we are theirs. Hence, there is a necessary indeterminacy in the craft practice that is developed. As opposed to a modernist way of “French gardening” the material, liquid design practice aims at leaving space for both the micro-organisms in presence and the social context to express themselves, “English gardening” style. If a slick and eye pleasing design is being curated in galleries for privileged clients, a gross design is activist and its craft aims at giving a voice to the unprivileged, to the marginalized or unheard. Until it is acknowledged that there are no merges, but only situated cultures.

Designing with the oddest, grossest materials, is a political stand in favour of including others, favouring otherness and openness for the sake of not only reconnecting to the territory but doing it collectively.

To sustain and spread the values it promotes, thr34d5 has structured a knowledge transmission sequence throughout workshops on kombucha crafts - growing a pellicle, treating it, making from it. The process itself is particularly simple, with few steps and tolerant of variation - as an example the bacteria need sugar but are quite lenient on the type of sugars provided, which has a surprising influence on colour, texture and thickness of the pellicle. The kARP has been the birthplace for a series of objects made out of kombucha pellicle, from garments to art pieces, all of which contributed to develop novel craft practices. More recently, thr34d5 has started investigating the possibility of harvesting both the pellicle and the kombucha drink to reduce waste from each of the processes. The kARP is an open-source program for participants around the world willing to contribute, and thr34d5 documents the knowledge gathered, making it available online, including the data on kombucha culture and crafting.
Figure 1. Textures of kombucha as experimented by thr34d5.
4. What is gross is liquid

4.1. Disgust in kombucha

The kombucha pellicle is appalling as much as it is appealing to the five senses, contributing to trigger core disgust (Rozin et al., 2008) (Figures 1 and 2). While the privileged senses of taste and touch are identified as provoking disgust, smell and sight also participate, and the confrontation with the pellicle therefore is a memorable experience. As a pellicle grows in a liquid usually considered a beverage, taste immediately comes into play. A superposition is created with the liveliness of the culture of bacteria when being involved in the process of production; this aspect is deemed particularly gross in Europe where the kombucha drink is mainly sold pasteurized, while much easier to accept in South America for instance where the drink is sold with cultures still active - a reminder that disgust is as much a social construct as is edibility. Whether it is possible to eat the pellicle is also an extremely frequent question, and is in fact possible, with some people even making candy out of it. Thus, the idea of ingestion is constantly present when interacting with the kombucha pellicle. Furthermore, a sweet acidic smell is developed during the long fermentation that is necessary to grow a kombucha pellicle. This characteristic smell is quite familiar to fermented food inclined people as it relates to umami – a flavour found in preparations such as soy sauces, cheeses, wines, pickles, to name a few. The sense of hearing is involved too: while not particularly significant on its own, the squish of the pellicle participates in the general characteristics of an encounter with kombucha cultures.

The pellicle goes from squishy and wet, saturated in water, when retrieved from the mix, to sticky while drying to smooth and soft once treated. The confrontation is constant as the pellicle needs to be manipulated at all stages of the process. Most designs with the pellicle would be garments due to its mechanical behaviour (bacterial cellulose can be up to fifteen times stronger in tensile strength than leather), which involves a skin contact while worn. Skin contact has been shown to be a major component of the gross related emotions. The appearance of the pellicle, reminding skin through its colours and textures, the marks and moulds sometimes appearing during the growth process, the bulges forming when manipulating it wet, are all classic elements of the Grotesque aesthetics.

4.2. From fascination to animism

“When bodies spill out of their boundaries, or when parts are severed from the whole, they become unsettlingly other” (Thackara, 2019). As is shown in the photograph below (Figure 3), a raw kombucha pellicle has a distinct appearance reminiscent of skin and organs. This visual analogy to human guts and body parts leads to a renewed reaction of disgust related to anthropopathism. This proximity to human anatomy can even lead to one not hesitating to confer life to the pellicle. This mechanism reminds of animism and ways to confer a sacred status to non-humans, or life. The friction stemming from the awareness of the possibilities of eating and drinking the resulting liquid and pellicle and of this organic aspect
results in the notion of ingesting the other, a feeling of a major transgression of moral boundaries. A path exists on which we could embody the SCOBY, transgress the moral rules to become one.

Figure 2. Endeavor on the aesthetics of fresh kombucha by thr34d5.

The kombucha pellicles, because of their usage as vectors of transmission of SCOBY colonies from peer-to-peer, are also referred to by the terms *mother* and *daughter*. A mother is the strain used to inoculate a kombucha mix and a daughter is the pellicle produced by this mix overtime. Keeping track of the strains and their ties is done in the form of a family tree by thr34d5 as well as by other kombucha researchers, with each mother and daughter baptized with a name and family name. Participants to kARP workshops and to the applied research program are often found to spontaneously baptize their batches of kombucha and refer to the SCOBY as beings. Furthermore, the care for conditions of culture and the growth over time act as a constant reminder that the SCOBY are living organisms. The precautions to keep it from being contaminated during the cultivation setup evoke the fragile aspect of life. Feeding the SCOBY with sugars and witnessing their reactions to changes in the conditions recall that it is not handleable, it is other, and one builds a respect towards it.

4.3. Towards inclusive cosmogonies

While the characteristics of the kombucha production naturally render it gross, thr34d5 has been documenting the kARP activities by further staging the grossness of the process and of the raw material. The lab-like installations where the pellicle is grown, the glass jars in which some are cultivated, also feature a Grant Museum, curiosity cabinet-like style known to be a marker of the Grotesque. Enhancing the flesh and wet aspects of the pellicle stirs fascination, grasps the gaze. The frequent overlap with human bodies seeks to remind that the gross craftsmanship is inclusive by essence, as there is a trans-species collaboration at play. The establishment of a collaborative craft with a non-human is in fact not really new territory, for there are countless works acknowledging the non-continuity of the concept of nature in pastoral ways of living and pre-modern societies (Descola, 2005).
The culture of kombucha pellicle is the place of a lasting clash between disgust and familiarity, generating a sense of fascination and grossness. The personification of the kombucha contrasts with the unsettling solicitation of the five senses during the process. When harvesting and treating the pellicle, it changes from a strange, raw, wet, lively, organic matter to a leatherlike, much more familiar textile. The steps of the process relating to the growth of cellulose, although presenting similarities with producing food and cooking, can be exotic to many given that it involves bacterial culture. The steps relating to the pellicle treatment, however, are commonplace and mobilize everyday tools and activities such as sewing. Kombucha culture therefore goes back and forth from disgusting to usual, in a continuous disparity between liveliness and object-like familiarity. These clashes enhance curiosity towards kombucha, strengthen the impulse to adopt and personify and are an encouragement towards interspecies collaboration. Conversely, kombucha crafts oddly resemble the aesthetics of gut clothing traditionally found in Arctic regions (Schmidt, 2019), which brings an interesting perspective onto our discussion onto aesthetics, taste, craft, transmission and situatedness.

5. Conclusion

The kombucha practices introduced by thr34d5’s KARP illustrate a xenodesign practice in that it acknowledges a collaborative dimension of conception in regard to both humans and non-humans by its material semiotics. The program and the introduced design practice focus on care, maintenance, and inclusiveness by adopting an aesthetic of grossness and methodologies fostering indeterminacy and holistiveness of senses. Mobilizing the gross in design works is an opportunity for the continuation of the challenging of dominant models, of which the normalized representation of the body (Figure 3). Liquid practices in everyday designs have the potential to carry out activist and affordance aware practices, or rather build impact for designs endorsing intentions. If a user-centric practice is by definition anthropocentric, modernist and replicating dominant models by conforming to what is expected of it, a community-centric practice challenges the establishment, opens the dictionary of semiotics in design (Rigobello & Gaudillière, 2019) and leaves space for identities to become familiar within the relational space that is generated.

Beyond the materiality of kombucha, the present paper explores the potential of a design methodology in becoming building on queer art investigations of identity and otherness, of difference and individuality, and on gross as a reaction, towards the articulation of a design practice for social inclusion, referred to as xenodesign. We understand from the experience of this research that the transmission of knowledge in design and craft practices embedding such qualities shows much potential for developments, for there is an intuitive and leverageable act of animism happening over the variety of situations encountered that illustrates at individuals’ level the striking power lying in material semiotics. This foreseeable aspect of craft practices development should be further investigated with a variety of...
materials in an effort to build an understanding of knowledge transmission, belonging and intuition for social inclusion.

Figure 3. Confrontation of aesthetics by thr34d5.

This research aims at supporting a larger movement in maturing everyday design methodologies to build upon ones that satisfy only a few senses by an “eye-candy” effect or mind pleasing by normalization and identification, that is by encouraging a richer and yet affordable understanding of the material semiotics at hand for contemporary designers.
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Chicago: University of Chicago Press.


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**Acknowledgements:** authors are thankful to members of thr34d5 for the many discussions that foster this continuing research, especially to Vivien Roussel that generously shared his knowledge on conceptual art.
Finding New Representations of Old Knowledge: a design study of visualizing I-Ching

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Abstract | This is a design study that explores the potential of using modern technologies and visual design strategies to represent and find new meaningful insights into the ancient Chinese text I-Ching. The goal of the project is to overcome cultural and language barriers and investigate innovative visual solutions to objectively analyse and interpret I-Ching than language translations. The text visualization project follows a mixed-methods approach that involves document analysis and design research process to identify analysis tasks with matching visual models. The interactive visual outcome intends to reveal new patterning insights of the Hexagram symbols and the commentary texts from I-Ching. The visualization approach and research process explore new opportunities for viewing and understanding abstract text information that is polysemic and sometimes uncertain. The assessment results suggest that a modern visual design approach can be an effective strategy for encouraging people to learn in unfamiliar territory.

KEYWORDS | INTERACTIVE DATA VISUALIZATION, TEXT VISUALIZATION, TEXT AND SYMBOLS, DESIGN METHODS, DESIGN RESEARCH, ANCIENT CHINESE PHILOSOPHY
1. Introduction

The adoption of computational techniques within the humanities allows scholars and experts to build tools or employ digital technologies to assist research and communication. Among various digital and computational methods, the growing prevalence of information visualization techniques has been tied to the analysis of humanities subjects. The main role of information visualization is described as to help users to perceive patterns that could be used for building an appropriate model (Purchase & Andrienko, 2008). It provides a convenient means to summarize dense information in visual forms that allow users to understand and identify data insights. Thus far, text mining and visualization resources and applications have been mainly focused on English language or Latin-based scripts. This study directs its focus towards visualization design of ancient Chinese text – a significant and rather unique book – I-Ching. Published in the late 9th century BC, I-Ching (also called Yi Ching, Yijing, or Zhou Yi) is one of the most important books in Chinese history. Yi means Change. Therefore, it is also known as the Book of Changes. Although the most popular understanding of the book lies in its value as a divination manual, it is a book based on the psychology of individualization process in its essence. I-Ching has a direct influence on much of Chinese culture and philosophy including Confucianism and Taoism. It has also inspired thinkers of almost every intellectual persuasion: from the realms of philosophy, religion, art, politics, social sciences, to mathematics, physics, astronomy, and technology (Smith, 2012).

Ancient Chinese language is very concise and often obscure. There is no tense, gender, plural, article, preposition, or punctuation, and sometimes there is not even a subject or object. Therefore, the contents and their interpretations of I-Ching have revered and attained mythic status with the passage of time. The original I-Ching is a very “visual” book that is composed of symbols and their meanings. The sixty-four unique hexagrams with six changing lines all apply to a particular reading. Many studies of I-Ching in present days try to use verbal language to interpret these visual symbols and their meanings. Thus, the relationship between different elements is not easily identified from these text descriptions and the meaning of the readings is often ambiguous. In a world where people communicate increasingly with images, we are asking: can we use modern data visualization and visual communication design strategies to reinterpret the hexagrams of I-Ching so that the patterning insights are more clearly represented, and the themes of the readings are more evident? Furthermore, can an innovative visual approach reveal new connections among the elements in I-Ching that were hidden before?

The study here presented is, therefore, the first to examine how modern visual design approaches may reinterpret I-Ching in a clear, appealing, and digestible manner, and to make the ancient text more accessible and likely to attract more interests by new generations of readers and scholars. We hope to overcome cultural and language barriers and seek more innovative methods to objectively analyze and interpret I-Ching than language translations.
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With this in mind, the first objective of this study is to dissect the contents of I-Ching and understand its historical background. The second objective is to develop a visual system, taking into account principles and theories of visual perception and graphic representations, as well as considering the role of motion and interactions, to highlight the patterns of interconnections within I-Ching. The third objective of this study is to investigate whether this modern design approach to view I-Ching can communicate clearly and effectively to audiences with different knowledge backgrounds, as well as stimulate their interests in learning more about I-Ching and ancient Chinese philosophy.

2. Background

I-Ching is a system to explain the nature of the world and how it acts in harmony with its patterns and processes. This project is based on the version formulated in the Zhou dynasty (ca. 1045-256 BCE). The contents contain 64 six-line (a combination of solid and broken lines corresponding to Yang Yao and Yin Yao) symbols known as Hexagrams. The Hexagram originated from The Yin and Yang represent the "Two Modes" (两仪), and they can be divided into "Four Phases" (四象). Then dividing the "Four Phases" yields the "Eight Trigrams" (八卦). Each Hexagram is composed of upper and lower Trigrams. The combinations of the Trigrams result in 64 total Hexagrams (Figure 1).
Figure 1. *The foundation and structure of the Hexagrams.*

Each Hexagram has a name, a brief statement known as the Decision or Judgement, and commentary texts to explain each of its six lines called Yao Text (Figure 2). Ancient Chinese language is known to be extremely concise with many possible interpretations. Therefore, the statements and comments provide a vast set of possible interpretations for I-Ching. Although there have been many versions of translations, from modern Chinese to western languages, it can be a lifetime endeavour to reveal the linkage among all elements and the sequences of structures within the contents (Huang, 1998).
Ideas and concepts constantly evolve. Since Shao Yong (1011–1077, Song Dynasty)’s “image-number” approach to studying I-Ching (Birdwhistell, 1989), there have been more than one thousand image interpretations in China from the Tang dynasty (618-907 CE) to the Qing dynasty (1644-1912) collected in Zhou Yi Diagram Collections (Shi Wei, 1995). Besides divination, many of the visual reinterpretations relate to cosmology, alchemy, Yin Yang, and Fengshui study. In the western world, the visual structure of I-Ching has been re-constructed mainly based on mathematical principles. For example, a spherical structure to reflect the image of the world called Yi Globe (Drasny, 2007 and 2011) and a nine-stack mountain cube with reflective symmetry (Martyn-Smith, 2016).

How to bring out elements and their correlations in the original I-Ching through unbiased objective visual interpretation is what we focus on. The target audiences for this project are primarily non-specialists. It is intended for people who are interested in I-Ching and to provide them an intuitive model to objectively explore the rhythm and flow of the symbols and their relationships to the commentary texts. We want to help readers deconstruct the ideas encompassed in I Ching to build an understanding of it piece by piece.

3. Methods

This study follows a mixed-methods approach involving document analysis and design research. Document analysis includes literature reviews of the structure, the symbols, and versions of commentary texts in I-Ching as well as the relations among them. Qualitative and quantitative methods of data collection, text mining, and text data analysis are applied. Design research involves the iterative process of analysing, ideating, prototyping, user testing, and implementing a web-based interactive application.

As a design project for a specific humanitarian subject, matching the analysis tasks with appropriate tools and design models is essential. Therefore, the two approaches of document analysis and design research are consistently intertwined in the process. Text analysis and visualization aim for the purpose of comprehension, categorization, comparison, and correlation of the visualization tasks. The visualization tasks are:
• Reconfigure the symbol representations and categorize them in such a way that the patterning structures and connections between the Yin/Yang positions of the 64 Hexagrams can be better presented and comprehended;
• Allow viewers to browse and locate frequently occurred keywords that relate to disparate stages of divination from the commentaries. The distributions and the transitions reveal a glimpse of the “correlative thinking” mode of Chinese philosophy;
• Identify common subjects from the commentary texts and query these subjects at the scopes of identify, compare, and summarize.

4. Design Process

Edward Tufte’s concept of micro/macro readings of information display (Tufte, 1990), and Ben Schneiderman’s visual information-seeking mantra (Shneiderman, 1996) both advocate for representing information of various scopes from the overview to details. The interactive functions (programmed with D3.js) of this visualization project enable this approach. With the interactive model, the details of the design components are there to expand and support the larger system as it grows in richness and complexity. In order to create design solutions that reveal the trends, patterns, clustering, and outliers of I-Ching from multiple scopes of reading, the design process considers:

• The symbols: visual representations of the Hexagram symbols and the geometrical patterns among all Hexagrams;
• The semantics: the individual divinatory terms and subject categories, and the cyclical movements among different stages of situations and subject coverage among all commentary texts.

4.1 Redesign of the Hexagram

In I-Ching, Hexagrams are arranged in numerical order from one to sixty-four and are organized into pairs based on the principles of inversion and the opposition of Yin and Yang. Inversion means that the lower and upper trigrams flip positions, which results in a mirroring effect; and opposition is demonstrated as each line of the Hexagram turning into its opposite (Figure 3). However, for people who are unfamiliar with the arrangement of the Hexagrams, these organizing principles are not easily perceived. According to visualization perception theories, spatial region and hue contrast are the top two most effective identity channels to recognize categorical data (Cleveland & McGill, 1985; Mackinlay, n.d.; Munzner, 2014). Therefore, we apply contrasting hues to the symbol to separate the Yin/Yang states and add an additional spatial dimension (from lines to forms) to better reveal the sequence structures and the inverse and opposite patterns of the neighbouring Hexagrams (Figure 4).
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4.2 Geometrical Patterns of the Hexagrams

The redesigned symbols of the Hexagrams intend to make the patterning structure more pronounced and maybe better respond with user interactions. Each Hexagram consists of six lines (or squares in this version). They are called Yao. When the positions of the Yin or Yang Yaos are highlighted, users may examine the correlations among the Hexagrams with the
same Yin/Yang Yao position. Trigrams – when each Hexagram splits into the upper and lower three – are another critical element in the signs of I-Ching. The eight Trigrams, invented by the legendary hero Fu Xi (Deng, 2013), represent the fundamental order of the universe (see Figure 1). Besides the commonalities in the patterning structure among Hexagrams that share similar attributes, how the positions and patterns relate to other data points is another query that guides the visual design direction. We seek answers to questions relating to the hidden connections among the elements of I-Ching with the redesigned visual representations. For example, do all Yang Yao in the second-order reflect negative divinatory meanings in the commentary texts? Or do these Yao consider the same subject category? Do their appearances in all Hexagrams share any correlations or causality connections?

With such complex information display, we use visual design principles such as creating visual contrast and controlling the visual movements to guide users’ attention to particular elements. The users’ experience of searching, acquiring, and receiving information is also intended to be enhanced with motion as visual active feedback responses (Stone & Wahl, 2018).

4.3 Word Frequency in Commentary Texts

The meanings of the Hexagrams are mainly explained through the commentary texts in I-Ching. The commentary texts include two parts: The Decisions (卦辞) and the Yao texts (爻辞). The Decisions and Yao Texts were originally composed by the Duke of Zhou in the 11th Century BC (Huang, 1998). The Decisions are one-line statements to describe each Hexagram. The Yao Texts are commentaries to explain the individual lines within the Hexagram. The analysis of each individual line (or square with the redesigned symbol) corresponds to each of the six stages of a particular situation of divination (See Figure 2).

I-Ching scholars believe that one of the most important messages from I-Ching is that everything is in a process of continuous change, rising and falling in a progressive evolutionary advancement (Deng, 2013). This process of continuous change is conceived in terms of the Ying-Yang metaphysics (Cheng, 1976), which is an essential form of the Chinese “correlative thinking” philosophy. Correlative thinking suggests that different types of things are classified and coordinated into correlative systems, and thus considers explanations of individual happenings as relating to these systems (Needham, 1991; Graham, 2016). Such a principle also applies to the Chinese mode of divination. I-Ching is traditionally used as a divinatory system, so fortune-related keywords constantly appear in the commentary texts. With the text analysis algorithm, we are able to identify the three most frequently occurring characters in all Yao texts are 无咎 (no misfortune), 吉 (auspicious), and 凶 (ominous), and they happen to represent the three stages from the favorable to the unfavorable time and situation. The change dynamism, in particular, appears when disparate keywords occur next to each other within the Yao Texts of one Hexagram. The most frequently occurring keywords in the Decisions have been sorted into three categories: positive, neutral, and negative in regard to their divinatory meanings. At the moments when the transition from
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one extreme to another occurs, the paths of these transitions are highlighted with user interactions. These highlights that reveal the distributions and the transitions of the divinatory words convey a glimpse of the “correlative thinking” idea of Chinese philosophy.

4.4 Subjects of the Comments

Although the Decisions and the Yao Texts are written forms to help explain the abstract significations of the Hexagrams, the concise texts are still cryptic and obscure in many ways. In order to sort through the wide range of contents from the comments, we use the three subject categories generalized by Richard Smith in his book “The I Ching: A biography”: images of things, images of affairs, and images of ideas (Table 1) (Smith, 2012) to gain a better understanding of the implications of the Hexagrams.

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<th>Table 1. Subject categories based on Smith’s classifications</th>
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<td>Images of Ideas</td>
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The subject codes are generated from the commentary texts is based on the semantics of the sentences and keywords. As a result of the coding and sorting, we find that most Hexagrams contain more than one subject. For the visual presentation, we want to reveal the connections and distributions of each subject and its corresponding Hexagrams.

4.5 User Interface

I-Ching Hexagrams traditionally have been arranged in both a circular and grid-based structure. In Chinese culture, the Yin Yang symbols make a perfect circle, and the circle shape is a symbol of harmony, unity, and infinite cyclic movement (Eberhard, 1986). Therefore, the redesigned Hexagrams are organized clockwise along a circular form starting from the right end of the meridian. Outlined rectangles extended out from the Hexagrams represent the character count of the Decisions. The filled-in rectangles are the ones that
correspond with the divinatory keywords. Shades of grey separate the positive, neutral, and negative meanings of these keywords. Lines of dots that represent characters of the Yao texts are arranged toward the center of the circle. The color patterns of the dots are to reflect the corresponding Yin/Yang stage of the Hexagram. Navigation tabs on the right side of the screen provide interactive opportunities for viewers to explore the system (Figure 5). The navigation structure is organized by the visual analysis tasks: word frequency in Yao texts; commentary subjects; divinatory keywords positions; geometrical patterns of the Hexagrams.

![Figure 5. Web-based user interface design of I-Ching](image)

The hover effects triggered by user interactions intend to convey a sense of movements flowing in the visual display of the Hexagram system. The movement of changes, i.e., twinkling highlights and connections among different graphic symbols, gives rise to multifaceted meanings of this revamped visual interpretation of I-Ching.

5. User Evaluation

User testing is conducted twice during the design process. One with a digital sketch-based prototype in the early design stage, and the other with a functional interactive screen on desktop computers toward the end of the design stage. There are a total of 6 participants involved in both testing sessions that include 2 scholars whose research expertise relate to I-Ching and Chinese philosophy, and 4 non-scholars who have little or some knowledge of I-Ching. During the first testing session, participants were asked to openly evaluate the visual design, and scholars were asked to provide feedback on information accuracy. The second testing was a combination of task-based usability assessment of the interaction experience and design evaluation regarding visual aesthetics and communication effectiveness.
5.1 Evaluation Process

The first user testing session provides valuable feedback from the I-Ching scholars regarding literature references and existing I-Ching studies. The commentary subject category is one of the examples that is revised after scholars’ reviews. One scholar found it had been challenging for her to see the Hexagrams in completely different visual forms from the original six-line symbols. Such a transition was not a problem for the non-scholars. But all participants agree that the patterning structures and the organizing principles are more noticeable with the updated Hexagram symbols. Therefore, we decided to keep the design concepts of redesigning the Hexagrams.

The second testing session aimed for evaluation of usability, communication quality of the content, aesthetics, information quality, and user engagement. Several techniques and instruments were used to gather evidence on these dimensions (Table 2). Usability was mainly assessed by a task-based questionnaire. The required tasks include: identifying the Hexagrams that share both the inverse and opposite relationships; picking out the most common divinatory tone(s) of the explanatory comments; considering the correlation between Yin/Yang position or Trigrams and the commentary subjects. Communication quality of content was assessed by objective measures (self-report of comprehension problems) and subjective measures (task-based performance evaluation). Aesthetics was assessed by identification of user perceptions of visual expression and creativity. Users were asked to use 5-point scales to rate in categories such as “pleasant”, “clean”, “creative”, “original”, and “sophisticated”. Information quality addressed the educational impact of the visualization project. The measure builds upon the Bernier Instructional Design Scale (BIDS), a method of evaluating the instructional design quality of printed educational materials (Bernier, 1996). We used four categories related to learning objectives, quality of content, reusing potentials and chances of recommendation, and learning potentials. User engagement was measured by three related items with a 5-point scale.

Table 2. Assessment considerations

<table>
<thead>
<tr>
<th>Usability</th>
<th>Tasks relate to the speed of reading, understanding, and navigating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Self-report of usability problems</td>
</tr>
<tr>
<td></td>
<td>Color accessibility testing through online colorblind web page simulator (<a href="https://www.toptal.com/designers/colorfilter">https://www.toptal.com/designers/colorfilter</a>)</td>
</tr>
<tr>
<td>Communication quality of content</td>
<td>Self-report of comprehension problems and clarity of delivery</td>
</tr>
<tr>
<td></td>
<td>Tasks relate to the identification of information hierarchy, navigation structure, and icons</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>5-point scales: visual attractiveness and creativity</td>
</tr>
<tr>
<td>Information quality</td>
<td>5-point scales: learning objectives and quality of content</td>
</tr>
<tr>
<td></td>
<td>Dichotomous choice: reusing potentials and chances of recommendation</td>
</tr>
<tr>
<td>Engagement</td>
<td>5-point scales: engaging, educating, stimulating</td>
</tr>
</tbody>
</table>
5.2 Results

The assessment results show that all users are able to complete the given usability tasks and successfully interpret the visualization. However, all users agree that a thorough grasp of the context (mainly from reading the “about” section on the web page) is necessary for them to understand the model and enable them to reason about the visualization. With the online color-blind simulator tool, we learned that the red/green and blue/yellow color blindness both return favourable results that the colors representing Yin and Yang are able to display distinguishable contrast for users with color-vision impairments. Problems addressed by the participants are associated with the abstractions of visual symbols and the overwhelming feelings of the information density.

As shown in Table 3, almost all participants agreed that the visual creation is pleasant and original. Information presented through the visualization is engaging and stimulating. The non-scholar participants all agreed that it is helpful for them to understand I-Ching and stimulate their interest in learning more about I-Ching and ancient Chinese philosophy.

Table 3. Testing participant’s opinions regarding aesthetic, information quality, engagement, and educational effects.

<table>
<thead>
<tr>
<th>Opinion</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opinion1: Visual Attractiveness</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Opinion2: Creativity</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Opinion3: Content is engaging and meaningful</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Opinion4: Acquiring new knowledge</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td>Opinion5: Increase of Learning Interests</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>33%</td>
<td>67%</td>
</tr>
</tbody>
</table>

6. Conclusion and Discussion

This is a design study that aims to create a compelling visual expression of an ancient text that may overcome cultural and language barriers and reach a new generation of audiences and scholars of Asian philosophy and history. The design approach and research process
explore new opportunities for viewing and understanding abstract text information that is polysemic and sometimes uncertain.

The visualization outcome achieves the following tasks: It uses alternative visual symbols to represent the Hexagrams that better disclose the geometrical patterns and their organizational structures; It highlights the key divinatory terms and the transitions among them to visually convey the “chance-driven correlative thinking” Chinese philosophy; It connects the 64 Hexagrams with the subject categories to bring more clarity to the meanings of the comments. The graphical expression shows clear and immediate results in that most explanatory comments indicate positive or non-judgmental (neutral) divination; “nature” and “mindset” are the two most covered subjects among all commentary texts; most Hexagrams share the “inverse” relationships and four pairs of the Hexagrams share both the “inverse” and “opposite” relationships. More connections and studies can be explored using this modernized graphic depiction of I-Ching.

If the history of knowledge is the history of forms of expression of knowledge (Drucker, 2011), then this project intends to undertake the challenge of finding a proper new representation of old knowledge. The concise language and the unique symbols make I-Ching seem like a suitable piece of work for graphical rendition. However, because of its obscurity and complexity, any interpretation runs the risk of being treated with skepticism. One of the ground rules in the early stage of design is to ensure that the visualization is based only on objective information without any interpretative construction. Then it comes to the realization that “subjectivity” is unavoidable during the design process. For example, many obsolete characters of Ancient Chinese have been interpreted or translated in different or even opposite meanings. The translation chosen would affect the information reading significantly. Then the decision of information display – as for the registration of point of view, correlations of parameters, and visual expressions are all subjective to some extent. A nineteenth-century Chinese commentary on I-Ching states: “The Changes is the mirror of men's minds” (Smith, 2009), which means that everyone can and will have his own interpretation of I-Ching. This characteristic of having infinite possibilities is a part of I-Ching’s identity.

The complexity of I-Ching also requires some background knowledge, to begin with. It is confirmed with user assessment in the design cycle that all users, scholars or non-scholars, need to receive relevant context to help them understand the layers of information visualization. More experiments can be conducted on how much background information is necessary and how it shall be obtained by users. Evaluation results also confirm that this new visual approach to access ancient knowledge helps people to gain a better understanding of complex concepts and increase their interest in learning more about it. The testing results support the conclusion that a modern visual design approach can be an effective strategy for encouraging people to learn in unfamiliar territory.

The divinatory practice is another important part of I-Ching that has not been covered in this study. By casting the coins or yarrow stalks multiple times, a Hexagram would be obtained
for I-Ching consultation. In 1951, John Cage created “Music of Change” using the divinatory method of I-Ching. The process of composition was based on a system of tables that contain sounds, durations, dynamics, tempi, and superpositions. Then selections from the charts were made through coin tosses according to the procedures in the I-Ching (Clarkson, 2001). How this “indeterminacy” composing approach in music (Childs, 1974) may be applied to delve deeper into the changing dynamism and the chance-driven uncertainty of visual expressions could be the next step of creating modern design interpretations of I-Ching.

References


Finding New Representations of Old Knowledge: a design study of visualizing I-Ching


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**Acknowledgements:** I am immensely grateful to Dr. Han-wei Shen (Professor, Ohio State University, Computer Science and Engineering) who provided insight and expertise that greatly assisted this project, and Peiyuan Tang for assistance with D3 programming and his extensive knowledge in I-Ching and Chinese history.

My gratitude also goes to Dr. Ying Zhang (Associate Professor, Ohio State University, History), Dr. Mark Bender (Professor, Ohio State University, East Asian Languages and Literatures), and Dr. Richard Smith (George and Nancy Rupp Professor of Humanities emeritus, Rice University) for their support, comments, suggestions, and encouragement for this project.
Form is function. Ethics and aesthetics of digital technologies in inclusive interface design.

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Abstract | The discourse on the relationship between form and function in the world of design has its roots in the industrial and Tayloristic model that contrasts and differs from the artistic and artisanal process since the disciplinary foundation. At the origin of the debate there are visions about the role of design in society, but also about the specificity of its own language. The digital revolution and the introduction of Human-computer interaction and the wider concept of Human-centered design have profoundly transformed this relationship, strongly shifting it in favor of people, their expectations and their needs. In particular, when design then focuses on inclusive and universal approaches – i.e. addressing needs that go beyond standards – form is often sacrificed on the altar of accessibility transforming the experience of both audiences – “normal” as well as impaired subjects – into a poor and a “low-resolution” one. On the other hand, for people with disabilities, form itself is the essence of experience. Whether it is the sound channel or VUI in the case of visual deficiencies, the figurative language, for acoustic disabilities, or the tactile-sensory component, considering the cognitive and perceptual aspects, the form becomes both the medium and the message as well. The paper aims to identify the stages of a possible cultural and social journey, within the broader scenario of Universal design/Design for all and the culture of accessibility, which includes the aesthetic-emotional dimension as a shared design value and driver of innovation in the sector. Besides, it illustrates through the discussion of case studies, in the field of personal and public communication, possible approaches to ethics and aesthetics of inclusive design.

KEYWORDS | ETHIC AND AESTHETIC IN DESIGN, EMOTIONAL DESIGN, UNIVERSAL DESIGN, DESIGN FOR ALL, SOCIAL DESIGN
1. Form is function?

The serial production of mass-objects begun by the Industrial Revolution breaks the generative relationship between the object and its shape. The mass product, in fact, has, as its purpose, the satisfaction of basic and common needs, which inevitably implies standardization, in the process of serialization, and conformity in the formal language. The object, which is symbolic by its very social nature, becomes a-symbolic or hyper-symbolic, since massification breaks the link of semiotic meaning produced by the individual and the cultural context.

Historically, the Modernist movement and its functionalist drifts also redefine the relationship between form and function from a design point of view. From the lapidary aphorism of Sullivan (1896) “form ever follows function. This is the law”, extrapolated however from its original context and repeated like a mantra, to the exasperated search for functionality, the imbalance in favor of utilitas has long crystallized the debate.

As underlined by Cloninger in ‘Form Follows Function’ Revisited (2009) presenting the second edition of his Fresher Styles for Web Designers: More Eye Candy from the Underground (2008), a book aimed to bring back the discussion about style in web design:

“One problem with ‘form follows function’ is that it is tautological—it presupposes that every form in the natural world exists as it does because of functional requirements. We start with the end result (the form), look backward toward its origins, and assume that the results were inevitable. But there are any number of reasons why something might have a particular form (chance, malevolence, whim, purposeful design, play, folly, and numerous combinations thereof).

The digital revolution and the mass medium par excellence, i.e. Internet, have brought back the dimension of pleasantness among the design variables, even if with extreme delay and strong resistance. The theoretical, cultural and methodological path started with Human Computer Interaction, then declined in cognitive ergonomics and usability and, now, as user experience design has overwhelmingly brought the human factor – needs, fears and expectations – and research with users at the center (Desmet & Hekkert, 2007; Hall, 2013). Yet even these areas, focused on people and their demands, have long shown strong resistance to the contribution of aesthetics and its value.

The main prominent figures in the field, who shaped the cultural frame since the late 90s, have been represented by Donald Norman and Jacob Nielsen and the less known partner Bruce (Tog) Tognazzini at NN/g.

On the one hand, Donald Norman, as he points out in his book The psychology of everyday things (1988), represents the rational and “scientific” approach to interaction and experience design. Norman is a complex and hybrid figure: an electronic engineer with a PhD in Mathematical Psychology. During his professional and academic life, he has given a strongly rational and cognitive science/ergonomics related imprint to his research and dissemination work in the field of usability and experience design. Coming from these...
Form is function. Ethics and aesthetics of digital technologies in inclusive interface design.

research backgrounds that he himself defines as engineering, science and experimental approach that looks at “data” as a source of certainty, Norman completes the gap between the need to affirm the primacy of usability and component of pleasantness only in recent years with the book Emotional design (2003).

On the other hand, Nielsen, considered the usability guru, has shaped almost 25 years of web design culture with his do’s, don’ts lists. His primordial battles against with space in homepage – a counterintuitive approach compared to the visual design and Gestalpsychologie principles – or his radical assumption on user behaviors such as users don’t scroll, or link must be underlined and blue to be recognizable (2000), almost limited the richness of the online experience to a data-retrieval activity. If information access is the driver both of the project as well as the fruition, then, everything can be measured and statically evaluated, certified, in a way. If the debate about industrialization and modernity has relegated form as a consequence of function/ality, in the digital era, it is a consequence of data and rational measurability of the user performance:

“There is an unarticulated war currently raging among those who make web sites. [...] this conflict is one that only its participants recognize. The war is not between commercial sites and experimental sites. [...] This war is between usability experts and graphic designers. [...] For better or worse, the divide between these two camps existed long before ‘new media,’ and will continue to exist long after the web has become as commonplace as indoor plumbing. ‘New media’ merely brings this dichotomy into renewed focus because, well, it’s new. We’re still developing the web’s vocabulary. Consequently, we’re still trying to get a handle on this ‘usability/design’ conundrum, largely unaware of its primordial origins.” (Cloninger, 2000)

Taking in to account the ISO 9241 standard (1992) definition of “Ergonomics of Human System Interaction” (revised and renamed in 2006), nevertheless, the parameters to be considered are three: efficacy, efficiency, and satisfaction.

“The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use.”

But, main of the formulas developed to measure the first two component, miss or are not feasible for the third one:

“Most usability tests are impotent to evaluate the success of a site in terms of conveyed emotion, because emotion is something that most users (and most humans) have difficulty articulating, particularly in response to multiple choice questions. But just because a positive interactive experience can’t be charted doesn’t mean it hasn’t occurred. [...] Such inarticulability is inherent to a vocabulary of the aesthetic. Graphic design on the web is no exception. Still, just because a truth can’t be reduced to a sound bite, it nevertheless remains a truth.” (Cloninger, 2000)
At the same time, studies by Kurosu and Kashimura (1995), however, opened a new scenario, showing that even such an elusive parameter as the aesthetics of a digital object and its impact on human behavior could be measured empirically. The experimental – and therefore scientific – contribution reopened the discussion also within the HCI world. In *Emotional design* (2005) Norman, in a sort of revision of previous studies reconsiders “visceral design” among the design components and the elements that influence the way we make decisions. The completely rational and *sequential* person – outlined in cognitive psychology studies, which is often synonymous with logic/rationality – finds his emotional, visceral and sensorial part again.

Tractinsky, with Lavie and Ikar (2000), reproducing the Kuroshi and Kashimura experiments usefully express the parameter of beauty as a structural element of perception and function. In their research, in fact, they abandon the ambiguous and mimetic wording of “apparent usability” to embrace that of “beauty” (Bollini, 2017). Form, then, is not another element, but an intrinsic component of function, and aesthetics is not superfetation, but an intimate quality of the relationship that the digital object (and not) will entertain with people.

**From access to accessibility and back**

However, from its own very first foundation the web has been considered an accessible environment, it hasn’t been in the proper way. If people’s perception is played out in contact with the surface, as defined by Bonsiepe (1993) or on the highest level of the experiential system designed by Garrett (2000), what happens if in the vocabulary of possible interpretations, a sense is missing?

Precisely because the forms of digital communication, starting from the paradigm introduced in the 80s by the GUI (Graphical User Interfaces), are still deeply rooted in the visual dimension of interaction, the question of how information is *presented* is crucial. However, the scenario has become increasingly complex. On one hand, the widening of the media and instrumental spectrum – Voice User Interfaces (Schumacher, 2009), chatbots, mixed, cross and blended realities, tactile and tangible interfaces and so on – on the other hand, the opening of the definition and spectrum of phenomena that go under the idea of disability/accessibility. The design of the communicative-visual dimension of these artifacts has its roots in the long tradition of graphics, its theory and its practices. A tradition, cultural and professional, field with a strong ethical-social connotation. But having become the interface system the intermediary – or at least the collector/connector – between people and many services and information, the ethical dimension becomes even more crucial (Bollini & Branzaglia, 2003; Bollini, 2006).

In the vision of Tim Berners-Lee, the “father of the web”, access is conceived primarily as a factor of inclusiveness and participation:
“The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect.” (1997)

Almost at the same time of the transformation of the web into a mass media – as far as its commercial beginnings in 1994/95 – the W3C starts a project dedicated to online accessibility: the so-called “WAI standards”. The Web Accessibility Initiative was born in October 1997, also thanks to the activity already carried out by ICADD, the International Committee for Accessible Document Design – in particular by Mike Paciello, George Kerscher and Yuri Rubinsky – which met for the first time in March 1992 on the occasion of the Conference Technologies and Disabled People (Bertini, 2002).

The sensitivity to access to digital resources of disabled people offers a broad vision ranging from physical disabilities – visual, auditory, motor (Boscarol, 2003) – to cognitive disabilities including dyslexia, but also low digital literacy or the use of a language other than one’s own. The World Health Organization definition further broadens the spectrum. It is estimated that about 15% of people have disabilities worldwide, but if we consider disability, in a broader sense, as a mismatch (Holmes, 2018) or a gap between the characteristics of the individual and the environment in which he or she lives and interacts – according to WHO – there are at least 1 billion people who identify themselves with at least one form of disability, twice as many in the broad sense, and in a holistic sense the entire world population. Moreover, when we talk about disabilities, we have permanent disabilities in mind, while temporary or situational conditions also exist. It is, that is, a dynamic and evolving state.

The paradox of universality

There are, in fact, two critical nodes on which accessibility plays its statutory dimension. On the one hand, the definition itself is explicitly addressed to people with disabilities. On the other hand, the idea of a design that, also for reasons of economic cost and timing, tries to give a universalistic answer to the problem according to the motto one-size-fits-all (Bollini, 2020).

On the contrary, in his last speech Ronald Mace (1998) – inspirer of the Universal Design “movement” and founder of the Center for Accessible Housing – is very explicit:

“Its focus is not specifically on people with disabilities, but all people. It actually assumes the idea, that everybody has a disability and I feel strongly that that’s the case. We all become disabled as we age and lose ability, whether we want to admit it or not. It is negative in our society to say ‘I am disabled’ or ‘I am old’. We tend to discount people who are less than what we popularly consider to be ‘normal’. To be ‘normal’ is to be perfect, capable, competent, and independent. Unfortunately, designers in our society also mistakenly assume that everyone fits this definition of ‘normal.’”
If we redefine the very notion of normality, as in fact both WHO and Mace propose, the spectrum and the variability of the conditions for which it should be designed, are irreconcilable, especially if the reference is normative. The laws and guidelines – from the WAI to the Stanca law in Italy or section 508 of the Federal Rehabilitation Act in the United States – mainly give a minimum or practical-quantitative requirement response as an operational tool. From a social point of view, on the other hand, design offers answers of an experiential type, of understanding and interpretation of the problem, beyond the respect of the technical aspect and, above all, of an inclusive type.

According to this approach, the different immeasurable needs must be able to coexist and dialogue within the common ground of plurality in a sort of realistic utopia like the veil of ignorance proposed by the American philosopher John Rawls in A Theory of Justice and recently taken up by Monteiro. The latter suggests adopting it as a criterion for evaluating the designer’s work:

“It’s very simple: when designing something, imagine that your relationship to that system gets determines after you’ve made it”. (Monteiro, 2019: 48)

The invitation is to have a people-oriented or empathic approach, thinking of a project that is not universalistic, but differential: not equal, but fair.

### Inclusion: design driven accessibility

When design, then, focuses on inclusive and universal approaches (Mace, 1998; Accolla, 2015) – i.e. addressing needs that go beyond standards – form is often sacrificed on the altar of accessibility, transforming the experience of both audiences – “normal” as well as impaired subjects – into a poor and a “low-resolution” one (Mantellini, 2017). A different response is therefore possible, especially if the ethical and social vocation of the project is taken into account. An approach that uses design as a driver of inclusion, in fact, exploits the elements that people have in common, despite their diversities.

The interface – the contact surface between the instrument and the subject (Bonsiepe, 1993) – needs all its intrinsic beauty which is an essential part of its functionality and it is essential for the experience to be positive and satisfying. This necessity emerges dramatically when the neurotypical/able-bodied people find themselves to overturn the daily life of those who, instead, have different needs.

An emblematic case is the site that at the same time of the first editions of Dialogues in the dark – a guided experience into the dark – proposed by the Istituto dei Ciechi di Milano, unfortunately not present in this version in the Internet archive. An apparently empty page offered an ordinary user what a disabled person – in this case a blind person – feels when navigating in a digital world that ignores his or her needs. The apparent incommunicability turned, instead, into an accessible communication for those who used a voice browser or for those who discovered that, simply the text was the same colour as the background: present,
but not visible. The site intentionally exploited two patterns from the first generation of the web to design this dystopia. On the one hand, it used the deprecated practice – often adopted by porn sites (!) or to fraudulently force the ranking of pages in Google and other search engines – to insert words and texts that were not visible because of the same color as the background. On the other hand, when you select text with the cursor, in browsers or in many writing software, the text is highlighted with a colored string. A similar experience is often proposed by Scano (2014) when presenting at conferences and talking about the accessibility in the Italian Public Administration field.

A much more mature, systemic and holistic project is Quiétude developed by the University of Siena, Santa Chiara Fab Lab (Project Coordinator), Glitch Factory, T4all in collaboration with the University of Southern Denmark, Siena Art Institute (for a more in-depth description of the project: https://vimeo.com/225549829). A jewel, before it’s even a smart object or an assistive device (Marti & Recupero, 2019) that works on the aesthetic value of the device, before its very functionality. Or, perhaps, precisely because it is beautiful it makes a prosthesis acceptable, both for the people who use it as well on a social level and normalizes the difference.

**Figure 1.** Quiétude *(Courtesy of Prof. Patrizia Marti ©, University of Siena)*

**Conclusions**

In a blended world – where real and digital overlap in the different modes of interaction and where people’s experience becomes the focus and the reason for the project and production
the relationship between form and function seems to be reversed. The aesthetic dimension becomes a functional and usability factor in our perception and a crucial aspect of the project. The beauty, the pleasantness, the intangible, the immeasurable become elements of inclusion and equity in a design-driven accessibility approach that gives qualitative, not just quantitative, answers to people’s needs.

References

Form is function. Ethics and aesthetics of digital technologies in inclusive interface design.


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Abstract | Today's communication scenario is increasingly characterised by composite images combining 2D and 3D techniques, frames in motion, short clips and videos in loop, boomerang and an endless list of new filters that define today's communication scenario. Static and dynamic, volumes and flat models merge, but above all stories and lives that only a short time ago were miles apart. Such production in the fields of art, graphics and advertising is reflected on the behavioural models of today's generations, who live through the production of images spread through social media, thus making the means and products of communication the actual stage of our time.

In this scenario, the present paper introduces the concept of Graphicmance, a neologism that combines the terms 'graphic' and 'performance' to describe an increasingly complex visual production capable of responding to the manifold cultural and technological stimuli we receive in real time. Languages and images that produce a fleeting, mobile aesthetics, constantly on the move and in progress, which can change and take on new shapes constantly, by producing increasingly short-lived, everyday life stories and narratives.

KEYWORDS | GRAPHICMANCE, AESTHETICS, INSTAGRAMMABLE, SPREADABILITY, EXTEMPORARY SOCIETY
1. Introduction

A long, long time ago, according to the canon of Polykleitos, if a statue did not respect certain proportions, then it “was-not”, meaning that there was something wrong with the outline and form of that model which could not, therefore, be described as a work of art. The ideal of beauty was based on objective assessment models, mainly reflecting an idea of harmony between shapes and colours, subject and background, going as far as calculating to the smallest level of detail all the parts of the images that would then generate one complete work. However, with the “loss of rural tradition and urbanization, (...) the collective taste achieved irreversible changes” (Vettese, 2007) that go well beyond perfection, also accepting clashing forms and increasingly unnatural combinations among the canons of harmony. According to Remo Bodei (2015), we are

“used to thinking that aesthetics is only concerned with beauty, while theory – since the 1800s – and practice have never distinguished between beauty in the classical sense, i.e. as a model, and the beauty that contains the ingredients of ugliness”.

More and more composite aesthetics are appearing, which reassert the value of “simulacrum-works, ex-voto, totemic sculptures, trash objects, vintage accessories, lace, buttons, chains, toys and other plastic waste assembled in a stupefying way” (Ceresoli, 2017) Composite images that re-establish the canons of a new visual culture as put forward by Gillo Dorfles in the “Kitsch Oggi” exhibition (was held at Milan Triennale in 2012), in which he dignifies Kitsch as an artist’s choice - a new model of taste through which to glorify desecrating, even playful expressive skills.

The idea of bringing together images that belong to contrasting universes influences Matteo Benassi’s graphic works. The artist, known as Riffblass, mixes religious icons with elements of pop culture using collage, one of the most widespread practices to actually combine contrasting realities, with the aim of distorting the image of reality by creating imaginary scenarios that are particularly appealing to the world of fashion. In its never-ending search for phenomena to dignify, fashion itself does not so much ask itself what the future will be like, as photograph the state of the art and the main artistic energies driving the everyday aesthetic culture. Such an interpretative ability is present, among others, in the New York-based artist Dough Abraham (art name: Bessnyc4), who, in a mix of sexuality, good taste, porn, horror and technology, has cut, stretched and shaped the logos and visual identity of big companies, showing that beyond the canons of pure graphics – untouchable, precise and uniform, communication has in fact many new ways to communicate, going beyond the uniqueness of a brand’s image.

From art to fashion, from illustration to graphics, there is a multitude of cultural and composition phenomena that stretch the boundaries of design, leading to new aesthetic parameters which, while undermining the border between “art and utilitarian object” (Benjamin, 2003), constitute a new culture of the image whose present is made up of a series of signs creating what Jean Baudrillard describes as hyper reality. A condition of life
affected by communication, which, shifting from the material to the virtual plane, fills our society with a number of simulacra born out of the mixture of real and unreal.

Such dilation and distortion of reality that affect graphic design methods “justify a multitude of sins (...) there are processes that are not driven by history, but by instinct and ugliness and that may, at times, bring to light extraordinary, flashing discoveries” (Heller, 1993). By way of example, fonts might be created apparently by accident, like a revelation that can be perceived through a fervid decorative form showing plenty of lines, dots, planes, shapes and colours. In this case we are witnessing a turnabout of typical graphic design processes. It’s like designing backwards, starting from an emotion, sometimes from an instinct, to unveil the communicative product only at a later stage. Think, for example, of the Restraint font designed by Marian Bantjes with the collaboration of the printer Ross Mills: it is a font designed from the outside, so to say, following ornamental signs imagined with “simply a decorative purpose in mind” (Figure 1).

Minor aesthetic elements that unexpectedly reveal letters of the alphabet. A font that produces images first and then texts. First, it nourishes the sight, generating emotions and a sense of wonder; and only a few moments later it can send a clear message. The aim is to anticipate emotional scenarios rather than focus on one single communicative purpose as established by the principles of Less is More. In other words, paraphrasing Bob Gill (2013), one should say “More is also more”, hence it is possible to use multiplied, repeated signs to send a message. The aim is more complex, or – we could say – expanded. Today images do not mean to show a linear, fluid thought only, but by having recourse to a multiple, increasingly complex grammar, they wish to draft the multi-layer scenario we are living in.
Figure 1. “Restait”, typeface by Marian Bantjes and Ross Mills.
2. Images as a common language

Not only does the cultural and artistic setting described above affect graphic and advertising design, it is also reflected on the behavioural models of contemporary generations who live through the production of images conveyed on social networks, turning the products and means of communication into the actual stage of our time. It is an emerging society which, as stated by Vilém Flusser (2009), “is not to be found in any place or time, but rather in surfaces made of images; surfaces in which geography and history merge”, recounting everyday occurrences as they happen. Several research projects show the constant increase in the production of images and videos by ordinary people: just think that Snapchat only records a remarkable 2.4 million data posted in one minute (Porro, 2019). Such production somehow reflects the present human condition. Now, according to T. Maldonado (2015),

“the ability to imagine, portray and produce illusionary worlds is one of the most distinctive features of our species. We humans are, above anything else, advocates of symbolic worlds, worlds acting as mediators between us and the real world. And it is precisely in this sphere of symbolic mediation that the various creative practices of representation develop, following millenary traditions, and providing our own version of the real world”.

Such representative capacity was developed by the Z generation in particular, followed by the Y generation, who are able to draw and communicate themselves and their surroundings: in this, they seem to confirm the views of the Canadian philosopher Ian Hacking, who does not talk of a *homo faber*, but rather of a *homo descriptor*, capable of producing images and of processing contents which, in the society of contemporary media “enjoy a new social life thanks to the digital networks along which they travel” (Wellman, 2012). As a matter of fact, the boom of social networks has been accompanied by the development of software, websites and free apps thanks to which anyone can create ‘momentary manifestos’ of the self, videos and short animations to express opinions and send visual messages in total autonomy. In addition to altering the relationship between works of art and the mass, “mechanical reproduction” (Benjamin, 2003). has given the masses the opportunity to produce images in few, simple steps. Images today are an integral part of everyday language: moods, reactions and emotions are expressed through emoticons, animated gifs and cinemagraphs – a particular technique that combines photography and video by increasing the number of communicative artefacts that a designer needs to know to tackle design in the extemporary scenario (Scalera, 2015). People’s very existence, as stated by Peter Sokolowski (director at Merriam Webster) has become a “sort of performance” translated into the production of communicative stories that can only be winning if they are ‘instagrammable’.

Suspended between pop culture and the new digital tools, new visual design stories are created, made of kaleidoscopic images that mix 2D and 3D techniques, combine frames in motion, small clips and videos in loop. Static and dynamic, volumes and flat models merge, but most importantly stories and lives that until a minute before were miles apart. Amateur,
mundane visuals that, while causing clashes and friction with professional productions, still affect contemporary visual languages in a major way. It is therefore necessary to de-absolutize and de-universalize the boundaries of visual design, as well as to blur the boundaries between what is right and what is wrong, because “those that used to be the only means of visual communication, today are most often inadequate, static and slow” (Munari, 1993).

3. The Graphicmance landscape

3.1 Graphic design between form and performance

When observing the evolution of digital languages and the proliferation of new communication channels, we are led to reconsider the theoretical and practical boundaries of graphic design, which are becoming increasingly fragmented and liquid. Among the parameters of design it becomes essential to define the “brand’s cultural landscape” (Schroeder, J., and Morling, M.S. 2006) that will no longer be recognisable through a monogram or an institutional colour: its identity will be a multiple one, enriched by several interpretations produced by the users themselves thanks to the new media and to their now mature visual skills. Openness, community, activism, dynamism, and responses to everyday occurrences become requirements to be included among new forms of design. The value of interaction is now an element that visual communication design can no longer ignore to the extent to which brands have changed their status and no longer communicate themselves as unquestionable truths, but rather as realities willing to listen to the new generations, who “do not only want to be convinced, but to be involved” (Schawbel, 2015). Today brands must propose, not impose, a vision, a product or a service; they must be able to establish an open dialogue with the public, who are more and more welcome into the creative and emotional processes. The idea is to involve, in order to enter the very mind of the consumer, like a travel mate along a unique path experienced in a special way, making every single person a protagonist.

Upstream, it is paramount to define the “narration” that the brand wishes to convey to the people even before their product or service is mentioned. A story that does not only tell the peculiarities of the marketed object, but one that “drafts behaviours, steers emotional flows, and synchronizes their circulation” (Salomon, 2014).

In the extemporary context, graphic design has become more complex: in addition to ‘signs’, it is required to design the lives of the signs themselves, their evolution and their relational abilities, drawing inspiration from new aesthetic forms, and opening up to the interpretation and re-elaboration of the sign itself by the public. This form of design appears as a performance, a form of
“art with a strong experience-based content, aiming at aestheticizing the everyday, an art of the unpredictable: yet, at the same time, it is an expression of the technological age, siding with the modern tools of reproduction like photography, film- and audio-visual recording” (www.treccani.it/enciclopedia/performance/).

In this perspective, if they want to establish a new visual aesthetics, designs must not only contemplate the influences deriving from art and social networks, but must also include uniqueness, technology and responsiveness among their design parameters.

The concept of performance takes on different meanings depending on the discipline that explores it from time to time: in this paper, in addition to its artistic sense, we are also looking at its anthropological meaning: in anthropology, a performance is a re-visited representation of recognised cultural genres, a critical tool to reflect on the society, as well as a possible area in which to express a view of the world alternative to the mainstream one.

The hybridization of the artistic and anthropological meanings of performance gives birth to the concept of Graphicmance, which brings together the field of graphic design and performances with the aim of talking about visual and emotional projects, customisation and new technologies, as well as the social and interactivity aspects of the graphic artefact. Communication projects that never stay the same, but grow, expand, open up, become fluid in the ideal of Bauman’s liquidity.

The term Graphicmance, therefore, refers to the design, over time, of a verbal and visual narration inspired by cultural, topical subjects which may involve the public and react, by means of the new technologies, to external stimuli – just like any living organism.

In addition to enhancing the aesthetic, functional and emotional aspects of a brand, the graphicmance project responds and changes, taking on different shapes in relation to the external environment. Like a performance, graphic design embodies mobility in its very essence, showing itself through complex, dynamic images that are open to change, to alter their own image in real time. An aesthetics in motion, suitable for representing the fleeting moments of a society that is becoming increasingly fast, mobile and unseizable.

3.2 Some possible applications through society, entertainment and "faith".

In this framework, designs must be able to illustrate stories that evolve and can have a different ending every time. A tale meant, as a long book that describes the brand’s everyday nature, through which to reinforce the values on which brands base their statutes. Let’s try, for example, to imagine the visual identity of a university Department designed according to the Graphicmance vision. The visual would react to academic life and could, on an everyday basis, change colour and shape in relation to the events occurring in the departments or the classrooms. A graphic design that narrates by moulding its shape - a visual alphabet connected to sensors and to the internet of things technology which stages permanent performances inspired to the life of a brand. Graphic designs that dialogue with
architecture, for example, and change shape in relation to the flows of people who move across them, reproducing the dynamism of the population that gives life to them in real time. *Graphicismance*, therefore, means an active, living communicative product, which responds to stimuli. One example of images sensitive to external events are Google’s doodles, (Figure 2) which change their shape every day, drawing inspiration from a plethora of important historical events in a variety of fields. A re-design that, in spite of changing shapes and colours every day, still remains recognisable thanks to the narrative approach of the visual experimentation.

The above example tells us about the extent to which visual communication today can interpret and reflect lives, events and emotions conveyed through images in motion capable of shaping even a brand’s icon. Similarly, for the brand image created for the cities of Bologna and Turin, open logos have been created, that change all the time in relation to the story that is to be told not only by the institutions, but also – and above all – by the people who come into contact with a place and have their personal experience to share, by creating a personal, customised city’s brand.

![Google Doodles](image)

*Figure 2. The image represents the last updating of Google’s doodle.*

The wish to combine the concept of performance with the world of graphic design originates from the observation of the main communicative trends and from the will to merge the communicative skills of the new generations with the evolution of means of communication and new media. Today, every individual makes their lives a show, and does so by sharing stories on social media – the dynamic, moving and film-like images that Marc Augé (2015) analyses in “The power of image” and which create a link between society, performance and faith. According to the anthropologist, dramatization can establish intimate relationships with every single person, increasing one’s faith at the individual level. This reading integrates
the ideal of the community, showing how, through a performance, it is possible to dialogue with everyone and each individual at the same time, bringing the concept of customisation into the field of visual communication. Of all communication tools, “the filmic representation of reality is incomparably more significant to modern man” (Benjamin, 2003), and in the overcrowding of images, only visual narrations and dynamics can keep the public involved for a longer time, in addition to achieving a much deeper emotional engagement. Thanks to graphicmannes, meant as visual stories in motion, brands can put forward a constantly evolving identity through veritable ‘stories’, to be followed very much like a TV series. Certain fashion houses, including Louis Vuitton and Yves Saint Laurent, are doing that already, involving new generations by activating customized filters on Instagram. The filters, which are mainly used for the promotion of cosmetics, allow everyone to take a selfie next to the company’s logo – an action that brings customers closer to the world put forward by the fashion brand and makes them feel part of it. On top of that, YSL has expanded its communicative language through the self section on its website, which aims at exploring the manifold possible personalities of the maison as they are interpreted through the eyes of artists, photographers and filmmakers. According to Antony Vaccarello, creative director of the French maison, this project

“represents the freedom of self-expression without censorship and conveys many different facets of the Saint Laurent attitude. Creative discipline across art and fashion reinforces and fuels the concepts of diversity, individuality, and self-confidence through a lens free from pretense and hypocrisy. This project is an artistic commentary on society, while emphasizing the Saint Laurent core values. Self is formed by a heady mixture of attraction, ambivalence and mystery generated by photographers, artists, and filmmakers who have come together to make a confrontational statement”


This is proof that today personalities and events give a brand a multiple identity – unique, but at the same time representable in many different forms.

### 3.3 Tools supporting design

Alongside the projects that are created with their own concept based on the principles of dynamism, new platforms and software are appearing with the same inspiration, aiming at providing designers with variable models for the creation of unique, mobile visual languages. There are programmes which make it possible to customise fonts, such as “Variable Font https://v-fonts.com/, a simple resource for finding and trying variable fonts”. In its beta version, this website offers a wide range of mobile fonts featuring up to 1000 variables per type. Several parameters can be customised – width, height, thickness, crenation, spacing, and many other forms that are generated in relation to the single character. For example, for the OC Format Shards font it is possible to vary the intensity of the fragmentation; for Marble, in addition to width and height, it’s possible to adjust the optical size; or, for GT Alpina, to decide which version guarantees the best visibility on displays. Multiple
possibilities are being designed, at increasing levels of complexity, like the Gimlet X-Ray font (Figure 3), an experimental version released on 01/01/2020, which is based on the geometry supporting the font and the endless variables by which it can be modified. It is thus possible to design a customised font acting on its anchor points and change it altogether through the following parameters: Oncurve Point Size; Offcurve Point Size; Glyph Outline Weight; Point Outline Weight.

An experimental colorized version of Gimlet that exposes what goes on under the hood of a variable font, visualizing control points, bounding boxes, kerning, etc. The design of the underlying typeface and the visualization elements are both adjustable. As with DfR’s other color fonts, the default color palette can be customized with a web-based tool. (If the sample here is black and/or doesn’t change with the sliders, your browser doesn’t fully support variable color fonts yet.)

Design: David Jonathan Ross  
Publisher: DfR  
Characters: Latin  
Release: 2020-01-01  
Licensing: Paid/commercial  
Info/fonts: Df.com

Figure 3. The screenshot represents the interface of the Variable Font platform that includes the font Gimlet X-Ray. Available to: https://v-fonts.com/

In 2016, Hansje Van Halem, together with the printer and programmer Just van Rossum, created the visual identity for the Lowlands, the Netherlands’ biggest music festival, and designed the Wind font (Figure 4, 5), a mobile character that takes on multiple shapes. The typography is imagined as a script, capable of generating ever-changing posters and animations. Wind was later engineered to be made available to designers, giving them the opportunity to experiment with the endless forms of the same font: in addition to the four static styles, it also includes characters that can rotate 360°, clockwise and counterclockwise. Similarly to Wind, new fonts based on the logic of opening and mobility are appearing, a design horizon that is not widespread yet, so much so that not all operating systems can support the new font modellers. Major software development multinationals are working on this: since 2018 Adobe Creative Cloud, for example, have been providing increased interactive possibilities by including the plugin for variable fonts in Photoshop and Illustrator. These examples tell us of the birth of a new category of fonts: “digital movable types” which, unlike “leaden movable types” whose main aim was to compose a text, aim at expanding the
possibilities of design, customising projects to an increasing degree, and above all reacting to external stimuli in real time. Another tool for the customisation and creation of open visual languages is Spark AR Italia. The programme makes it possible to customise Instagram filters and spread one’s project through social media. The filters are clearly ‘incomplete projects’ that only take shape with the interaction of the public, who are the activators and disseminators of the project.

Figure 4. The program system is able to change the direction of all the segment of the WIND FONT.
5. Conclusions

By telling stories through images and by promoting attitudes and values, the concept of graphicmance is above all an invitation to take part in a collective narration that could potentially have a positive impact on the definition of human identity. The visual design project gives an aesthetic shape to the time we live in; “the interfaces of cities, of places and non-places” are shaped, enterprises create their identity, driving the economies of countries and continents. Not only this: visual design can trigger good practices, and give voice to positive experiences, since a good project has the power to influence populations positively, by enhancing the values of culture, respect and environmental sustainability.

In a nutshell, here is what design culture is all about: taking the chance to create designs that make human life better. In this perspective, the project must be critical and reflexive above all, and young designers must be aware of their human and social responsibility.

To say it in Henry Jenkins’s words

“the public of the media is also made up of individuals who get passionate about cultural products, who want to dialogue with them, want to own them, remix them, and use them to create new social bonds and negotiate their identity”.

It is necessary to shift the politics of the communication viruses generated with “memes and automatic bots” towards culture, because if these phenomena paved the way to the unstoppable sharing of contents, today they also identify those users who want to share cultural, quality media contents.

Producing graphicmances means, fundamentally, producing ‘spreadable’ interactive contents which spread because they are healthy, cultivated, reactive, and immersive and which may inspire good practices through the various forms of arts.

References


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Inner Geographies as poetic-aesthetic knowing: the inspiration and manifestation of creative doings through an emotively-orientated sensory methodology

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Abstract | To explore and describe knowledge of the self and worlds as an expression of contemporary culture in our zeitgeist, this paper draws on my interdisciplinary qualitative research on the psycho-spatial phenomenon of the inner geographies. Via an (inter)subjective ontology and interpretivist epistemology, an emotively-orientated sensory methodology was employed to engage a sample group of global interlocutors in Barcelona, Spain through fieldwork. Creative doings therein prompted revelations and captured articulations of engrained, evolving, and entwined personal and geographic complexities – making the ‘intangible’ tangible. It was found that personal undertakings of creative doings aid individuals’ navigation and comprehension of everyday life within the socio-spatial temporal condition and contribute to positive subjective wellbeing. Hence, this paper advocates the inner geographies’ ontological and epistemological potential and value as poetic-aesthetic knowledge – which both inspires and manifests as creative doings – that emerges from lived experiences through the self’s journeys in worlds without and within.

KEYWORDS | DOINGS, FEELING, KNOWING, PERCEPTION, WELLBEING
1. Introduction

Intertwined with lived encounters, *creative doings* (Hawkins, 2015) are less concerned with a finished product and more focused on learning through self-expression during the process of creation. “It is the act of doing itself” (Grüne, cited Rambhoros, 2019) wherein lies the value of such means ‘to know’ or ‘to come to know’ the self in the world and the worlds within the self. Drawing on my doctoral research on the psycho-spatial phenomenon of the *inner geographies*, this paper describes what individuals experience in worlds without and within the self in our contemporary socio-spatial temporal condition and how those experiences (typical and less typical) are interpreted and expressed as creative doings.

To do so, the paper presents an introduction to the research context of the *inner geographies* in relation to poetic-aesthetic knowledge as well as creative doings; an overview of the *emotively-orientated sensory methodology* for the theoretical and empirical research; a description of creative doings in the fieldwork process as well as those of interlocutors’ different *inner geographies* uncovered as findings; and a conclusive discussion that reiterates the potential of the inner geographies in order to advocate its value as poetic-aesthetic knowledge.

2. Context and background

Focused on global citizens’ everyday experiences within the contemporary condition, this paper conveys ways of living that reflect the spirit and tendencies of our time (Radhakrishnan, 1966; van Dam, 2014; and Jung, cited Chalquist, 2017). Based on the inner geographies, it affords insight into creative doings, which are:

“The creative acts of human beings...[through] which life grants humanity the constitutive agency to bring about new organizations of life....[V]ital to the creative evolution of humanity,...they promote the existential fulfilment of the vital depths of the human soul” (Backhaus and Murungi, 2009, p.220).

The paper forwards that this is poetic-aesthetic knowledge, which is synonymous with the inner geographies, that both inspires and manifests as creative doings.

2.1 Inner geographies

The somewhat abstract, (in)tangible, and elusive nature of the inner geographies prompted my need to understand and substantially define it. The point of departure was the premise of human geographer Inger Birkeland (2005), who argues that the inner geographies is “similar to the idea of the self, which in Jungian terms refers to the totality or ordering principle of a human being’s personality” (2005, p.7). And, according to psychoanalyst Robert Moore’s (2009) neo-Jungian version via his ‘map of the inner geography’, it involves
deep structures of the archetypal self, entailing discoveries about holistic development and spiritual growth.

Building upon and interpreting these views via the lens of inner-sensory perceptive experience, my research suggests that the inner geographies is an innate yet omnipotent phenomenon actively and intimately involved in everyday life. In addition to the development of a theoretical framework and formulation of a methodological strategy, the research contributed to knowledge by proposing a definition of the inner geographies:

“The coalescence of a ‘way of feeling and knowing’ and ‘significant encounters’ conveyed by our psycho-spatial biographies; a phenomenon that is shaped by and shapes the myriad lives comprising our lifetime.” (Rambhoros, 2019)

2.2 Poetic-aesthetic

Emerging from lived experiences in worlds without and within the self, the inner geographies uncovers and engages with the qualitative nature of everyday life in our contemporary context, the poetic-aesthetic.

As “sensitive and intelligent contact with the world” (Scottish Centre for Geopoetics, 2017, n.p.), ‘poetics’ connotes a metaphysical quality that transcends material and rational essence, and evades reading, explanation, and translation (Bachelard, cited Pallasmaa, 2011). It infers “an exploration of the human powers to make (poiesis) a world in which we may poetically dwell” (Kearney, 1991, p.9). The Greek poiesis is an evocation via sensuous experience, denoting an evocation of awareness, reflection, contemplation, interpretation, discovery, revelation, and creativity (Paetzold, 1997; Casey, 2002; Ghosh, cited Bhushan and Garfield, 2011; Pallasmaa, 2011; and Moslund, 2015). Relatedly, the ancient Greek aisthetikos originally means “pertaining to the senses” (Maquet, 1986:31). Aesthetics is, therefore, sense-perception that involves the pre-conceptual apprehension of something by embodied consciousness that engages all the senses (Paetzold, 1997; Augoyard, 2013; Howes, 2013; and Pérez-Gómez, 2016). Conceptualised as a framework of knowledge by philosopher Alexander Gottlieb Baumgarten, aesthetics is about feeling and sensation (Augoyard, 2013; Franzini, 2013; and Pérez-Gómez, 2016). It is the ‘theory of sensitivity’ as “the study of the sensibilia and of the acts of perception” (Franzini, 2013, p.116).

Thus, rooted in poeisis-aesthesis – as “a sensory-based unconcealment of the otherness [and/or] sensuous heterogeneity of phenomena” (Moslund, 2015, p.12) – a poetic aesthetic is a manifestation of “embodied resonances, a feel that corroborates the sensibilities” (Muller, cited Backhaus and Murungi, 2009, p.185, my emphasis). Challenging our conceptions of reality, it is “a language drawn from a way of being which attempts to express reality in different ways” (Scottish Centre for Geopoetics, 2017, n.p.). Unifying domains of knowledge and sensory entanglements, the poetic-aesthetic acknowledges and engages the integrated coexistence of familiar and unfamiliar, psychical and physical, intimate and universal, individual and environment, which inform one another to create and
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re-create our ways of being through emergent knowledge (Bachelard, 1958; Kearney, 1991; Casey, 2002; Zumthor, 2006; Mason and Davies, 2009; Pallasmaa, 2011; and Springer, 2017). Hence, the philosophical paradigms of phenomenology and metaphysics aid in inquiries into the nuances of poetic-aesthetic knowledge through perceptual experiences. They mediate outer and inner realms of the self, navigate the discernible and the enigmatic, and engage with worlds that exist by being present, known, or described via characteristic properties, as well as those that are partially unknown due to ineffable qualities and multiplicity of possibilities (Tuan, 1974; Maquet, 1986; Storr, 1988; Birkeland, 2005; Jones and Garde Hansen, 2012; Smith, Davidson, and Henderson, 2012; and Pérez-Gómez, 2016) – encapsulated by the inner geographies.

2.3 Creative doings

Offering insight into the lived condition, the value of creative expression lies “in the doing” (Hawkins, 2015, p.263), which arises from situated and existential experience as poetic-aesthetic knowledge. Through ‘creative doings’ (Hawkins, 2015), idiosyncratic facts of everyday life and the felt pulse of inner realms are merged in personal and multi-textured creative expressions (Tarkovsky, cited Bachmann, 1984; Johnson and Petrie, 1994; and Pallasmaa, 2009).

Whilst satisfying individuals’ needs for self-expression and/or yearnings for understanding, creative doings are spontaneous as well as considered explorations that emphasise process, through which affective reactions are prompted, personal situations are comprehended, inner truths are revealed, and life is meaningfully grasped (Pallasmaa, 2009; Hawkins, 2015; and Hunter-Blair, 2016). As an intuitive and intellectual process, it pulls feelings and thoughts into awareness to stimulate contact with the existential condition by assimilating past, present, and future in reflections, appreciation, and/or idealisation of life (Cooper Marcus, 2006; Merleau-Ponty, cited Pallasmaa, 2009; Tagore and Ghosh, cited Bhushan and Garfield, 2011; Pérez-Gómez, 2016; and Chrysikou, 2017).

Resulting in autonomous and authentic personal expressions, creative doings elicit feelings of being “more alive and fulfilled” (Ghosh, cited Bhushan and Garfield, 2011, p.62). The process awakens and unravels innermost stirrings located deep within or even hidden from the self – the “soul-idea” (Ghosh, cited Bhushan and Garfield, 2011, p.134) – revealed in the emotive character of the creative doings. But articulating this poetic in “a more vivid aesthetic sense” (ibid., p.133) requires operative, technical, practical, and instrumental knowledge and skills; thereby merging psychical intimacy and physical commitment (Sennet, 2008; Pallasmaa 2009; and Hawkins, 2015). Hence, creative doings embody the “specific relationships between thought and making, idea and execution, action and matter, learning and performance, self-identity and work, pride and humility” (Pallasmaa, 2009, p.53).
3. Approach and methods

Via an (inter)subjective ontology and interpretivist epistemology, my interdisciplinary qualitative research followed a GeoHumanities approach by drawing on inferences of architecture and the arts and humanities. Positioned within philosophical assumptions of phenomenology and metaphysics (philosophy of mind), it integrated experiential realms of spatiality and existentialism for a poetic-aesthetic investigation into the essential nature of experience of everyday life in the contemporary milieu.

3.1 Emotively-orientated sensory methodology

The poetic-aesthetic engagement with interlocutors necessitated a methodology that acknowledged other ways of sensing worlds via exploration and description of essences as well as interpretation and understanding of interlocutors’ presences (Kvale and Brinkman, 2009; Mason and Davies, 2009; Pietkiewicz and Smith, 2014; Tally Jnr, cited Moslund, 2015; and Springer, 2017). To do so, existing research methods were drawn upon, adapted, and combined as an ontological and epistemological framework, for which those of Bondi (2005), Mason and Davies (2009), Brickell (2012), and Mendoza and Morén-Alegret (2012) were particularly influential. Hence, an emotively-orientated sensory methodology, which incorporated psychological, geographical, and biographical facets in a fieldwork system, was formulated and employed to investigate and make tangible ‘intangible’ phenomena. It tapped into deeper sensibilities of the emotive and intuitive being to reveal explicit and implicit worlds and uncover hidden presences of inner spaces via ‘ways of feeling and knowing’.

Framed conceptually by emotional geographies (linking lived encounters with affective involvements) and practically by global mobilities (pertinent to the current socio-spatial temporal condition), the research was theoretically underpinned by inner-sensory perception with particular focus on essences of awareness, atmospheres, and imagination. The interconnected essences – extracted from literary and painterly arts (specifically those of Sir V.S. Naipaul, 1987, and Giorgio de Chirico, 1912, respectively) – were investigated theoretically through literature review and formed basis of empirical research in fieldwork. To obtain ‘tangible’ results on existential experiences of living as global citizens within the contemporary context, the notion of ‘journeying’ “geographically and psychologically” (2006, p.279) was borrowed from architect and educator Clare Cooper Marcus, who considers that different lived experiences compose life stories through deeply associated emotions. Using the triadic essences, the ‘metanarrative’ of journeys (which includes voyages outward to a physical location and inward within the self) engaged various forms of experiencing through interlocutors’ biographies.
3.2 Setting and sample

Exemplifying the contemporary context, characterized by a high level of mobility, the empirical research was conducted within the naturalistic setting of Barcelona with a ‘purposively sampled’ (Smith and Osborn, 2007, p.56) group of global researchers (comprising local and foreign creatives, students, and academics) for rich in-depth inquiry. The diverse geo-biographical, personal, and interdisciplinary backgrounds of the exceptionally mobile societal group offered a range of perspectives and emotive complexities of the global condition. Simultaneously a point of transfer, in-between-ness, connection, and centeredness that is lived in and passed through, Barcelona was the common variable shared by interlocutors, which grounded the fieldwork as a point of orientation and center of affect, both geographically and existentially.

3.3 Data collection and analysis

Fieldwork focused on interlocutors’ journeys in and near Barcelona, beyond the city and around the globe, as well as within themselves, by moving back and forth, and zooming in and out at different scales and intensities of experience. To do so, data collection employed narrative and creative methods, substantiated by the hermeneutic phenomenological method (HPM) (Lindseth and Norberg, 2004; Van Manen, cited Thomé, et al., 2004; and Dowling, 2007) for biographical life-stories and non-representational theory (NRT) (Thrift, 2008; Cadman, 2009; Anderson and Harrison, 2010; Patchett, 2010; Simpson, 2011; Jones, 2011; and Jones, 2012) for practice-based enquiry. Conducted mostly in focus groups in semi-structured workshops, fieldwork activities engaged the triadic essences of awareness, atmospheres, and imagination using techniques of dialogue, writing (especially ‘free-writing’), illustration (pictograms, graphing, and mapping), reflection, and mind-wandering. Empirical data generated by fieldwork was analyzed in relation to the theoretical data of the literature using interpretative phenomenological analysis (IPA) (Smith and Osborn, 2007; Smith, Flowers, and Larkin, 2009; Hefferon and Gil-Rodriguez, 2011; Pietkiewicz and Smith, 2014; and Interpretative phenomenological analysis, n.d.) as well as narrative analysis (Lapan, Quartaroli, and Reimer, 2012) and thematic analysis (Mayring, 2000; Braun and Clarke, 2006; and Earthly and Cronin, 2008).

4. Results and findings

Outcomes of the emotively-orientated sensory methodology and the fieldwork process of creative doings depicted the epistemological potential of the inner geographies to probe existing life situations, raise questions, prompt alternative thinking, heighten felt emotive responses, and, significantly, make the ‘intangible’ tangible. Moreover, it offered ‘something’ to the interlocutors by enabling them to consider the deeper feelings and meanings of worlds experienced without and within. The sustained impact thereof was reported beyond the fieldwork setting, as some individuals continued to attune to,
acknowledge, and contemplate the relation of self and worlds through the notion of the inner geographies via awareness, atmospheres, and imagination as they went about everyday life. Significantly, the research revealed that engaging with creative doings prompted uplifting experiences – which pertained to both thought and felt qualities of oneness, integrity, enchantment, serenity, and attunement – that had a positive effect on individuals’ subjective wellbeing. The fieldwork samples of ten interlocutors – namely Azul, Blau, Blu, Candela, Gris, Grüne, Oranż, Pers, Rojo, and Taronja (all of whom had been given pseudonyms to maintain their anonymity) (Rambhoros, 2019) – will be presented in this section.

An overview of the fieldwork observations of interlocutors’ engagements with the techniques of free-writing (Castle, 2017 and Wickham and Breir, 2018) and illustration (Tarkovsky, cited Bachmann, 1984; Pallasmaa, 2009; Lynch, cited Gold, 2011; Hawkins, 2015; Pérez-Gómez, 2016; and Thompson-Schill, cited Chrysikou, 2017) is briefly discussed here. In workshops, ‘free-writing’ (Fig. 1) is the creative process of ‘writing-to-know’ that involves reflexivity and “embodied discovery” (Hawkins, 2015, p.254), just as illustration (Fig. 2) does. Relinquishing ‘control’, interlocutors employed “tacit and experiential knowledge,…critical (self) awareness and critical reflection on [these] different ways of being and doing” (Castle, 2017, p.124, my emphasis). Encouraging fewer restrictions on feelings and less filtering of intuition, the techniques heightened interlocutors’ sensitive and affective exploration of their experiences; also raising conscious awareness to their felt states and emotive captivation during the expressive process. In so doing, they connected with, were immersed in, and merged with creative doings, which inspired ideas and triggered recollections.
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Hence, rather than means to purely record data, both free-writing and illustration prompted alternative and liberated ways of thinking and feeling to generate knowledge as revelations, discoveries, and realizations. However, whilst free-writing stimulated interlocutors’ internal dialogue and agency to release silent voices onto the page, those forceful undercurrents, subtle essences, and dormant or neglected aspects that could not be expressed as words were captured and given form by illustration.

Figure 1. Example of free-writing in fieldwork activity, by Pers (Rambhoros, 2019).

Figure 2. Example of illustration in focus group activity, by Taronja (Rambhoros, 2019).
Moreover, synthesized theoretical and empirical results showed interlocutors’ emotive and intimate inner movements. It foregrounded hidden dimensions and complex realms of emotionality, which interlocutors may not have been conscious of, those that may have been lost, or those that are concealed yet continue to resonate within them. Via interlocutors’ inherent and/or cultivated interests in ways of living, complexities of lifestyle and livelihood that open minds and broaden perspectives, and meaningful grappling with everyday life in worldly interactions, this highlighted the ontological potential of the inner geographies for engaging with existential experience in the socio-spatial temporal condition.

Significantly, these findings uncovered individuals’ personal engagement with creative doings, which facilitate their comprehension, transitions, and adjustments in contemporary life. It was found that, in seeking to understand and/or make sense of self and worlds, interlocutors afforded themselves freedom to ‘let go’, be driven by personal will and emotion, and be immersed in a spirit and flow of interpretations and expressions of life – through their own creative doings. Drawing on personal backgrounds (such as origins, arts and culture heritage, family lineage, and childhood associations) as well as intimate and observational interactions, which were translated into ‘tangible’ forms, their creative doings included performance (dance, music, and singing), photography, illustration (tattoos, mappings, and drawings) and crafted books (written and graphic).

4.1 Performance

Dancing, playing and composing music, and singing are embodied and existential enactments that fully engage a greater self-awareness and attunement to the dynamic experience of performing (Pallasmaa, 2009; Gurdjieff, cited Goodrick-Clarke, 2008; Kaplan, 2010; and Zarrilli, 2015). The process entails a “transmutation of the soul through the self-conscious...system of thought and all-encompassing knowledge” (Gurdjieff, Goodrick-Clarke, 2008, p.233). Possessing “a kind of emotional aura” (Tarkovsky, cited Johnson and Petrie, 1994, p.200), dancing, music, and singing involve a “whole-body feeling” (Hawkins, 2015, p.255) through which to convey accounts of lived experiences and grasp expressions thereof as a “feeling of existence” (Pérez-Goméz, 2016, p.142), which is shown by Azul, Candela, Grüne, and Oranž (Rambhoros, 2019).

Azul and Oranž connect with people by singing in relaxed social settings and performing with their bands. Helping her cope with anxiety, Azul feels enthusiasm, happiness, joy, and excitement when singing. She also documents her observations and interactions of travels and the everyday as sound recordings and melodies. For Oranž, singing similarly affords feelings of fulfilment and tranquillity; it liberates her emotionally and stimulates introspection. However, due to a multilingualism ‘dilemma’, lyrics frustrate her since meaning is lost in translation. But Grüne believes “sound is something everyone can understand through its link with emotions, or music and feelings” (cited Rambhoros, 2019). Rather than express momentary feelings, playing piano activates her senses to access enduring memories of loved ones. By contrast, fleeting emotions are freely communicated...
by Candela in dancing her native style of flamenco. Whilst connecting to her heritage, she deems it “a necessity to connect with yourself and express what you feel” (Candela, cited Rambhoros, 2019).

4.2 Photography

Photography possesses a “trace-like character [that] can serve as a point of entry into the ‘having-been-there’” (Frers, 2013, p.438). So whilst photography is not a direct intervention or embodied enactment in the present, it is not intended to merely capture the visual record of a situation but contributes to the making of individuals through associating narratives of self to processes of discovery (Birkeland, 2005 and Taussig, cited Hawkins, 2015). It is “created and experienced in a temporal and spatial way, linking the exterior world, past and present, to the interior world of the person” (Birkeland, 2005, p.106). This relation of particular images to personal stories is demonstrated by Blu, Gris, and Rojo (Rambhoros, 2019) – who have different meanings behind their photographic practices yet are all expressive of experiences and reflections of worlds without and within the self.

On all his travels, Rojo takes photographs of his doll, Frida, which are posted on social media platforms. His photo-project ‘Frida Worldwide’ (Fig. 3) raises awareness of his heritage by reaching across borders via Frida’s identifiable image, globally conveying the arts and culture of Rojo’s native homeland. Gris’ photo-narrative project, ‘the return to nowhere’ (cited Rambhoros, 2019), expresses a resonant sense of moving in adulthood inherited from her constant relocation in childhood. As manifestations of an “inner landscape and any concrete feeling” (Gris, cited Rambhoros, 2019), her photographs capture flashback associations, dreams, and thoughts in order to grapple with and better comprehend her experiences of moving and disparateness. Yet, Blu ‘celebrates’ dispersed family and friends by photographing a ‘love ritual’ (cited Rambhoros, 2019) – which entails the patterned arrangement of stones symbolizing their connection – when they reunite. Shared with loved ones to aid in recollection and reflection, Blu dates and records the images in a photo-diary to express their “emotional journey” (Pers, cited Rambhoros, 2019).

4.3 Illustration

Mediating past, present, and future as well as unifying time and space, illustration awakens ideas, enables embodied experience, and prompts intimate exploration of the way things are seen and felt through the process and/or result of/as drawing (Pallasmaa, 2009; Ghosh, cited Bhushan and Garfield, 2011; Deacon, cited Hawkins, 2015; and Hawkins, 2015).

“The work becomes a Journey that may take one to places and continents which one has never visited before, or whose existence has been unknown prior to having been guided there by the work of one’s own hand....” (Pallasmaa, 2009, p.111-112)

Whilst the process leads to discovery of possibilities, thinking and feeling, reflection and analysis are also involved in ‘completed’ illustrations, which capture aspects of self and
Inner Geographies as poetic-aesthetic knowing

worlds as a record (Tarkovsky, cited Johnson and Petrie, 1994; Pallasmaa, 2009; and Hawkins, 2015). Contemplative spirit and internalized visions become outward expressions, as exemplified by illustrations of Pers, Blu, and Taronja (Rambhoros, 2019).

A subtle line drawing of abstract simplicity, a tattoo (Fig. 4) connects Pers to her origins and identity, expressing the solitude and quiet of both. Symbolizing the swoop of birds’ wings, it prompts personal reflection of isolation and silence in the desolate and untouched landscape of her homeland. Relatedly, Blu’s ‘sentimental map’ (cited Rambhoros, 2019) connects loved ones to special places around the world (Fig. 5). As a shared reflection, they place dots to “map those feelings which they are unable to translate into words...[and] show where their heart is for whatever reason” (Blu, cited Rambhoros, 2019). Meanwhile, connections to lineage and individuality are remembered, acknowledged, and respected by Taronja when drawing with a specific pencil that resembles an heirloom. Drawing daily in his sketchbook, he thinks analytically about his spatial interactions through free-hand sketches.

4.4 Crafted books

Crafted books are vehicles that communicate and conserve particular experiences and information. As modes of making, they are alive “experimental spaces” (Hawkins, 2015, p.257) and “living creation[s]” (Ghosh, cited Bhushan and Garfield, 2011, p.147). Whilst recording the lived world, “wherein the conceptual ‘message’ is ‘the sum of all materiality’s, content and formal, compositional elements” (Berstein, cited Hawkins, 2015, p.257), in addition, their “metaphysical essence...creates a world” (Pallasmaa, 2009, p.85). Crafted books are both interpretative and interpreted artefacts, which capture and are captured as an “outward seeing [that] serves to excite the inner vision” (Ghosh, cited Bhushan and Garfield, 2011, p.147). This inner transmutation of what is seen ranges from the professional to personal as well as mediations of both, which is characterized by the crafted books of Taronja, Blau, Blu, Gris, Grüne, and Oranž (Rambhoros, 2019).

Taronja’s sketchbooks (Fig. 6) are useful for his recollection of particular information required in his architectural work and/or studies. They visually record observations, understandings, analyses, and interpretations of his interactions with places. Similarly, Blau’s fieldwork diaries document observations and discoveries on archaeological surveys and “adventure[s] in the field” (cited Rambhoros, 2019) as written accounts. Also carried on holiday travels, he notes different languages and unexpected encounters, explaining, “I like to go there some years later to connect my lost visual memory with my written words and then I connect with the things of the experience” (Blau, cited Rambhoros, 2019).

Also for reflection, Grüne’s travel scrapbook – which began as a keepsake of family photographs on her first trip abroad – is a ‘memory capsule’ of experiences, feelings, and personal thoughts. Her new Barcelona scrapbook contains everything she has “a connection with and want[s] to remember” (Grüne, cited Rambhoros, 2019). Similarly capturing personal thoughts, Gris lets her “feelings go and express themselves” (cited Rambhoros, 2019) in a written diary. Aiding the contemplation and understanding of her aloneness in
childhood and placelessness in adulthood, she explains the need and motivation for starting the diary:

“That sense of moving, belonging and having something inherent to me, in the bind between dreams and concrete landscapes, was becoming stronger since I move so much through dreams and memories” (Gris, cited Rambhoros, 2019).

Recording feelings and lyrical narratives related to places and people on her travels, Oranž “invent[s her] own plot of how things work” (cited Rambhoros, 2019) in her notebook. She captures music, work, and academic notes to contemplate the unusual, unknown, and unfamiliar, understand her experiences, and later reflect and share them with others. Blu also expresses her travel experiences in notebooks by drawing in color “to represent everyday things” as pictorial expressions of her “inner feelings” (cited Rambhoros, 2019) – which she finds emotively therapeutic and reflective. Black notebooks include written records and documentations of information for her profession and research, whilst color notebooks comprise graphic expressions of personal interactions with emotion and beauty.

"Si yo pudiera darte una cosa en la vida, me gustaría darte la capacidad de verte a ti mismo a través de mis ojos. Sólo entonces te darás cuenta de lo especial que eres para mí."
~Frida Kahlo

#frida #fridaviaja #sanmigueldeallende #gto #mexico #guanajuato #catedral #escapadasquemolan #wanderlust #travel #fridaworldwide

"if I could give you one thing in life, I'd like to give you the ability to see yourself through my eyes. Only then will you realize how special you are to me."
~Frida Kahlo
5. Implications

The aforementioned contributions suggest possible effects in the field of artefact design by considering a variety of project types, the interdisciplinarity of fields, and persons across a range of backgrounds in a collaborative process that entails consultation with individuals, researchers, academics, and practitioners. This is particularly pertinent to assist individuals in developing personal projects that they may otherwise have difficulty realizing – as exemplified by Rojo’s quandary, “I have several ideas but I don’t know how to do it” (cited Rambhoros, 2019).

For example, an extension of this doctoral research may entail working further with selected interlocutors to extend the current data and translating it into design artefacts. These may include: transforming Pers’s ‘visualization of silence’, Gris’s ‘hearing the landscape’, Grüne’s ‘musical transmission of emotion’, and Blu’s ritual of ‘connectivity’ and graphic ‘heart map’ into soundscapes; producing Rojo’s ‘Frieda Worldwide’ stamps (or perhaps postcards); documenting Gris’s ‘Return to Nowhere’ photo-narrative; and recording Oranž’s ‘story-songs’.

Engaging on these joint-projects in a collaborative process would in turn contribute to further developing poetic-aesthetic knowledge on both the processes and products as well as positive effects of creative doings.

6. Conclusion

As we navigate life together in the current milieu, the inner geographies offer the opportunity to explore and describe lives lived from within, aiding in making the ‘intangible’ tangible. It depicts the intersubjective interaction of psychical and physical forces evident in individuals’ geobiographical involvements, voyages abroad and inward, and streams of experiences that flow through space and time. Emphasizing personal agency and individuality whilst extending to the broader collective in a shared sense of society, the inner geographies speaks to universal and emotive complexities that connect our lives to each other.

This research on the inner geographies contributes to society and scholarship by offering a shift in perspective that mobilizes and generates knowledge on inner-sensory perceptive experience in an interdisciplinary manner and highlights individuals’ understanding and engagement with felt encounters in everyday life. As a collective yet individually nuanced
characterization of profound and innate knowledge, it enlightens ways of both living and researching in our contemporary milieu, making it means to better comprehend and shape life in our zeitgeist.

Using the potential of insights of the GeoHumanities, this paper has offered an in-depth description of the fieldwork processes of the emotively-orientated sensory methodology and specific samples of interlocutors. It has demonstrated the ontological and epistemological potential of the inner geographies in developing contemporary society’s need to acknowledge the value of creative doings. Significantly, it has shown the value of how poetic-aesthetic knowledge inspires and manifests as creative doings and contributes to subjective wellbeing.

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Acknowledgements: This research was funded by an Erasmus Mundus AESOP
Doctoral mobility scholarship, hosted by the Department of Humanities at
Universitat Pompeu Fabra, Barcelona, Spain. Thanks to all the participants for
offering their time and interest to share their experiences and contribute
invaluable insights to this study.
Italian Pavillion at
XXII Triennale di Milano.

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\textbf{Abstract} | On the occasion of the XXII Triennale di Milano, dedicated to the environmental and social issues concerning our planet, Politecnico di Milano was asked to represent Italy at the national pavilion. A general concept emerged: the enhancement of technical innovation to heal and fight contemporary concerns, the goal of taking care of the planet as well as of the health and safety of mankind and of the built environment, all belonging to nature and landscape and part of the same wider ecological system. An interactive library shows a multidisciplinary Design approach, facing critical contemporary issues and caring solutions, organized around the four natural elements and different dimensional scales of impacts. The paper analyses the role of Design in this particular context, both (1) as healer and leader within the most of researches (content/message) and (2) as a visualizer (exhibit/language) making the scientific research more accessible. This paper addresses the second topic in more depth.

(1) On the one hand Design, explained Antonelli, has the tools to become the catalyst for different skills and to describe alternative ways of solving the world’s great problems. Design balances human impact and tries to take care of the nature and the environment, moving in between Art and Science (Oxman, 2018). As emerging from the featured projects, Design is conceived as methodological approach to envisage and select among potential future scenarios through feasibility criteria and to manage and reinterpret the limited resources of existing contexts to respond to issues and demands, also in innovative/creative way.

(2) On the other, the Design challenge becomes the task to encourage a multidimensional discourse (Klamer, 2016) with a wide audience, overcoming the high specialisation of the topics portrayed and expanding the visitor’s vision into the future. Thanks to the use of technologies and multimedia set-up, all the exhibited projects result in an alternation of suggestive installations able both to fascinate the visitor at first glance and respect the research sophistication. Visitors are brought closer to global issues, thanks to their emotional involvement during the journey.

\textbf{KEYWORDS} | EXHIBITION, VISUALIZER, DESIGN RESEARCH, DESIGN CULTURE, BROKEN NATURE
1. Introduction

The XXII Triennale di Milano reaffirmed its decision to continue the tradition of the International Exhibition, the twenty-first edition of which was held in 2016 after a twenty-year hiatus. Titled “Broken Nature: Design Takes on Human Survival”, it consisted of a thematic exhibition and several installations from international participants and has run from March 1 to September 1, 2019. Curated by Paola Antonelli, the XXII edition was dedicated to the environmental and social issues concerning our planet. Through exhibitions and events, it prompted “a shift in our thinking about the environment, treated interjectionally to include human and animal life at all scales, and economic, social, and political systems in addition to natural ecosystems”. It highlighted the concept of restorative design and studies the state of the threads that connect humans to their natural environments. The idea that in the Anthropocene "humans are not an outside force perturbing an otherwise natural system but rather an integral and interacting part of the Earth system itself" (Steffen et al., 2007) clarifies why the object of the “taking care” has included humans as well as all landscapes, whether natural, artificially transformed or built, which all belong to a single environment where there is no distinction between nature and culture.

On the occasion, Politecnico di Milano has been asked to represent Italy at the national pavilion. The invitation offered the opportunity to draft an evaluation of the outcomes of its most authoritative current and historical research projects, devoted to the care of the surrounding environment as well as concerned the interpretation of respect for the "wonders of nature" and the possibility of "restoring" them. This has meant the tentative both to investigate the indelible human footprint on the Earth and to rethink the role and the civil engagement of Politecnico itself towards society. The Italian Pavilion, titled 4ELEMENTS / TAKING CARE, has selected, displayed and collected 41 selected designs, embracing the different types of know-how in the fields of architecture, design and engineering and ensuring the deep respect of the natural elements (water, air, fire, earth), the different forms of life, and the adoption of sustainable intervention methods tailored to the specific contexts.

Once entered, the centre of the pavilion has been metaphorically dedicated to a dynamic installation on the four elements engaged in a dialogue with the surrounding interactive exhibition on projects that have been completed, are in development or yet to be realized, by students, researchers and professors from all twelve Politecnico departments. All the projects have been grouped in eight oversize books exhibited on the perimeter. They, arranged in a geometrical metal grid on which data and poems can be read, have created a multimedia library. Finally, in the background, there is a Wunderkammer, the tribute to the tradition of studies at Politecnico, which for over 150 years has offered countless testimonies of work devoted to the care of the natural elements.

Inside the library, each displayed research has been strung together the others in a narration that moves from the vast scale of the cosmos down to micro- and nano-units of...
measurement. Each project, presented by a colour over-size book page, has tackled various contemporary concerns and such topics as: space pollution, climatic change, natural disasters, problems relating to specific Italian landscapes (such as glaciers, rivers, cultivated fields, urban realities), the reconversion of artefacts, the recovery and enhancement of Italian cultural assets, all the way to the artefacts and materials that accompany our daily life within domestic spaces, envelop our bodies, and, in some cases, penetrate and become part of them. Each research has shown a multidisciplinary Design approach, facing critical contemporary issues and caring solutions, organized around the four natural elements and different dimensional scales of impacts. Each one has represented an individual story with its own visual identity and its own language.

The intention was to enhance the multiplicity of interests, approaches and fields of application of each individual experience, avoiding processes of standardisation and resultant impoverishment, engaging the audience at large. The challenge was, without ever losing sight of the objective of a pleasant visitor experience, to make people aware and sensible to global issues.

Figure 1,2. Dynamic and multimedia installation on the four elements, in the center of the Italian Pavillion.
2. A matter of communication.

Museum and libraries have undergone profound transformation processes in the last decades. From heralds of monophonic narratives, they have been turned into supporters of new pluralistic reality and society, capable of answering to the hunger for “multiplicity” of today’s transnational culture (Parati et al., 2012). During the visit, the construction of meaning inside a museum, and therefore inside the pavilion, can be compared to the process of conversation, as Emerita Eilean Hooper-Greenhill (2004; 2007) explains and Arjo Klamer (2016) reminds us. A conversation where both those who know and those who learn play an equally active part in the experience of visiting. The Italian Pavilion has sought that dialogue with its visitors. It has faced an enormous challenge: it has created hooks of attraction and ease of comprehension. It has offered a non-objectionable view of topics that could be complex and difficult by nature. Since the initial concept, the experience inside the Pavilion has been based on the existence of a cognitive exchange between the university and the visitor. It focuses on a non-univocal or unidirectional passage of information between them. On one side there are strong and diverse contents to convey, and on the other a group of visitors who decides to approach or allow themselves to be approached.

Any kind of conversation establishes some relationships, physical and actual exchanges among different identities, in which no single element should impose itself on the other, but in which each different element livens and enriches its identity. Nicolas Bourriaud is the first to suggest the concept of “encounters” in the art consumption: encounters — between visitors and museums; between visitors and curator; between visitors and visitors; among visitors, contents and exhibit protocols — should become the “quintessence of the artistic practice”. Therefore, on one hand, the Italian Pavilion aspires “to invent possible encounters”; with awareness that encounters can only reach their actual manifestation when activated by human interaction. On the other, the purpose of the visitor is to engage with the exhibition and its contents, and thereby “create the conditions for an exchange, as you would return a service in a game of tennis” (Bourriaud, 2002, p.23). Moreover, the pavilion offers an articulated message that wants to address a heterogeneous audience; an interpretative community of different people and points of view. Seeing the audience as flesh and blood, and taking them into account, not as numbers of statistics and widespread dimensional analysis on museum consumption (Trima
cchi, 2014), but as people, with their own individual faces, their own souls, with the right to create an experience or to refuse to do so, to make a gesture, to sculpt their own narratives (Balzola & Rosa, 2003).

Thus, the challenges that Italian Pavilion has been substantially related to three themes: Narrative (what is said), Voice (who says it) and the Tone of Voice (how says it). Politecnico di Milano and Triennale di Milano conveys the message, while Visitors are the listeners involved in a 'cultural model' two-way communication, participating individually and actively in the construction and representation of meanings. Deriving from these are the issues of the listening, of interpretation, of understanding, and of personal meaning construction.
3. What is the message? Design as healer and leader.

The Politecnico message conveyed through the Italian Pavilion is thoroughly consistent with the role of Design portrayed in the Broken Nature exhibition. Through Design, humankind can repair the former separation with nature to establish the concept of a wider “Earth system”, a new notion of eco-system as a set of diverse elements and innumerable intertwined relationships. Applying a systemic approach to comprehend and take action towards the complexity of the world’s great problems, design is in fact the connecting element amongst disciplines, the creator of eco-systems. The multidisciplinary approach employed for the construction of the research methodology and of the involved teams, deploys a multi-sectorial broad vision to overcome points of view that are too specialized and narrow. With its integrated approach Design has the potential of overcoming the nineteenth-century distinction and dissociation between humanistic and technical and scientific cultures, the “two cultures” (Snow, 1959).

Moreover, it is thanks to the application of a clear example of co-design process, a collective and collaborative research development, that it is possible to approach complexity (Morin, 1977); to develop a common knowledge as both individuals and part of a community (De Kerckhove, 1997; 2000); to trigger unexpected perspectives, and to develop paths of knowledge effectively able to affect societal change (Sennet, 2012).

Design balances human impact and tries to take care of the nature and the environment, moving in between Art and Science (Oxam, 2018). A further message depicted by the exhibition is the unexpected beauty perceivable even in the most specialised techniques and analyses. It is a change of perspective to look at phenomena or landscapes between natural and artificial but also from a scientific point of view. The visual representation of scientific or natural phenomena is also perhaps related to the aesthetic criterion that can be found, in science, in the correspondence between a sense of beauty and natural laws.

Design is also the common methodological approach able to envisage and select among potential future scenarios through feasibility criteria and to manage and reinterpret the limited resources of existing contexts to respond to issues and demands, in an innovative/creative way. It in fact embeds the idea of foreshadowing and anticipating future visions, which are not just plain modelling and simulations through mathematical algorithms but also entail the ability to define the appropriate path in order to achieve the scenarios or to discard unwanted alternatives and negative shifts. As a consequence, the potential of the strategic dimension (Brown, 2008) of design thinking, which includes the concept of “antifragility” (Taleb, 2012) to broaden the perspective and horizons of action, has the strength not only to provide an answer to a given demand in a specific context, but to rethink existing gaps and shortcomings as possible resources through the development of a new value, a new meaning, a new balance and evaluate potential opportunities for long-standing problems through radical but non-increasing innovation.
4. Who speaks? And who does it speak to?

We focus now on voice and subjects of the conversation inside the exhibition: visitors and researchers. Let's start from visitors, going beyond the usual reductive distinction between experts and non-experts. Besides not being homogeneous, the cultural audience varies both in space and time; those who attend Broken Nature, and exhibitions in general, are hopefully by nature open to change and therefore pretty unpredictable in their tastes and choices about tomorrow (Trimarchi, 2014). We can intend every cultural experience as a cognitive process in constant evolution.

Every time we visit an exhibition, our cultural experience is subjective and reveals an emotional feedback of past experience and personal knowledges. It is practically impossible to focus precisely on the subjective and kaleidoscopic sequence of readings, listening, observations, explorations and discussions, which encourage people to become curious and decide to visit the exhibition. Each visitor is the bearer both of more or less in-depth pre-existing knowledge on the exhibition topic and of expectations, historical and cultural backgrounds, learning skills, interpretative strategies and subjective emotions. In this sense, a visitor is never a generic and passive listener who simply absorbs information but an interlocutor who takes part in a bilateral communicative exchange, participating individually and actively. Exhibiting is therefore equivalent to creating a new cultural discourse and new meanings. The visitor is an active subject of the conversation, just like the student or the scientist: he observes, selects, compares and interprets during his/her visit path. He connects what he observes with many other things he has observed in other occasions. Inside the exhibition, “he participates in the performance if he is able to tell his own story about the story that is in front of him” (Rancière, 2011, p.7). The visitor cannot be treated as individuals until we actually know what is unique about him or her (Simon, 2010).

According to the dialogue dimension, Politecnico di Milano, thanks to the exhibition '4Elements /Taking Care', faces a twofold challenge. It has to identify new moments of cognitive permeability. It has to satisfy not only the visitor's need to understand but also the researcher's need to tell the story behind the content. The relationship’s ambivalence of message transmission is underlined. Emphasis is placed on the social reliability and ability to inform of academic and research work. The latter, often not accustomed to the explanatory narrative, and not being technical, has to make a certain communicative effort. Visiting a Museum (and experiencing its collection) is no longer just for specialists; it is no longer reserved for selected and elected people. As a form of knowledge, it is founded on an interrogative vocation. Overall, we wanted to stage a collective tale, written by a scientific community that operates in the service of the common good, rich in attempts and experiments aimed at healing or mending the dangerous rift between humans and the environment.
5. A tone of voice. Design as a visualizer and multimedia language.

As museums in the Netherlands have demonstrated, everyone has a preferred learning style, or more than one (Gibbs et al., 2007). Therefore, the design of exhibit set-up should include a range of ingredients that offer a connection to each style of content comprehension. **What matters is not simply the knowledge learners acquire as a consequence of their visit, but also the ways in which they experience and learn during their visit.** David Kolb explains that process has two-dimensions: perception/understanding and extension/intention. The former defines how a person grasps a cultural experience; the latter defines how the same person internalizes it. Storytelling is, as Bruner points out, the first interpretative and cognitive device used by man – understood as a culturally situated social subject – in his life experience. Seen as a process of knowledge facilitation, the narration is what allows to re-elaborate experiences, producing a functional knowledge, capable of giving value to the latter. Furthermore, John Falk believes that “there is no single right way to learn things and there is no single place or even moment in which learning occurs,” (Falk, 2004, p.89) and, together with Lynn Dierking adds that “universally, people mentally organize information effectively if it is recounted to them in a story or narrative form” (Falk & Dierking, 2000, p. 51). Through narration, man gives sense and meaning to his own experience, outlining interpretations and foreshadowing coordinates of happened events, actions, and situations. In this sense, the place of narrative in the exhibition is central as well as the chosen design language and exhibit protocols are vital in defining the visitor’s cultural experience.

We should reflect on what is the narration. Narrative thought allows the visitor to relate experiences, collection items, and present, past, and future situations in the form of a 'story'. How can we build a story where action and contemplation are combined in a balanced way? The attractiveness of the story is always made of two inseparable elements: the story itself and the world in which the story takes place. **The Design language challenge has become the task to encourage a multidimensional discourse and a balance story to transmit,** creating a space for knowledge and reflection without diminishing the emotional engagement and the pleasure of visit.

The Italian Pavilion narration has started with emotion. As soon as the threshold is crossed, a series of exploded surfaces of video, light and graphics rise from the floor to the ceiling. They represent the natural elements, which turn into environmental problems; playing on the emotional component of the visitor, they raise questions in an endless game of reflections. **The multimedia central installation tackles the most empathetic aspects.** It addresses the sensitivity of each individual, visitor and researchers. Its transparencies play with the background Wunderkammer, generating time bridges with the university’s history. For Peter Jarvis, “all human learning begins with disjuncture—with either an overt question or with a sense of unknowing”. Emotion, sensation or disjunction are the motor that enables learning; so, the potential triggers to start the visit.
Having lowered any cognitive reticence or experiential prejudice, the visitor is invited to move freely among the 8 over-sized books. A stylised and library around the perimeter attracts and encourages him to enjoy relaxed and informal interaction. Coloured and transparent pages overlap and flow, and, when selected, they activate the relative video contents. They rely on the title or image being questioned, to know what they are talking about; they turn into an essential meta-level of comparison, between researcher and visitor. The one's possible view on the other’s world. They invite the visitor to the choice of the topic. From the initial dimension of contemplation, they lead to one of action, from 'being there' to 'acting'. If a first flow of contents has been moving in our direction and it has crashed into us, without the need to strive, instead, the gesture, the symbolic leafing through, decrees a choice and builds depth of meaning.

Gradually, page after page, project after project, everyone is able to create a personal key of interpretation, which is strengthened and expanded by the passage of time of the visit. Thanks to the use of technological devices, people are called to aggregate different and inconsequential narrative fragments; to choose what to deepen, having been intrigued by the cover, as happens in any library. Each page, like every book, is connected, sometimes without the reader's knowledge, to many others. It is a system of communicating vessels, the entrance door, free and revolving, leading towards the inspection. Whenever we enter the bookshop, there are books we choose by being attracted by the title or captured by the
cover's aesthetic or by the power of the image. We do it in a completely spontaneous and subjective way. All one has to do is select the 'right' topic, and then slide it into the fixed, white backlit page. By doing so, never-before seen multimedia content is activated. The narration begins. Films and images come to life on the adjacent monitor. Changing the subject, the video changes. A few seconds of viewing and then on to choose a different research.

Figure 4. Closer view of the interactive and stylized library. The visitor is invited to slide freely the coloured projects pages.

Various levels of detail contribute to the autonomy of the various media that concur in a polyphonic creation of languages that live together, without neglecting their differences. Andrea Witcomb describes these kinds of designs as a “polysemic exhibition practice” where multiple voices are curated together into a narrative. Moving among the coloured panels and observing, someone is more attracted by the colour of the panel, the title, the research question, the visual power of the main picture. Some covers are able to immediately activate a sense of familiarity and make visitors feel at ease picking them up first and leafing through them; others can make visitor closer just making them curious.
6. Conclusion

The end result is a pavilion that can be browsed through, listened to and evaluated. The scientific and analytical approach has invited to escape from its safe ivory towers, in order to spread and open up to the outside world. The exhibition aims to reach a broader audience outside the academic environments. The narrative devices and design exhibit protocols had made the difference. The voice tones chosen for this occasion was synthetic and empathic, mixing both the immersive and didactive, contemplative and active dimensions of the visit experience.

This was made possible also thanks to the design approach able to select and re-interpret the contents of the researches and innovations beyond the simple disciplinary scientific and therefore specialized contributions but in their disruptive potentials and impacts on society and culture; it is a way of seeing through different eyes also opening up to different perspectives and applications, healing contrasts and narrow-minded positions.

Design, as visualizer, has the power to represent the complexity and to organize an exhibition as a space of becoming (Carr, 2010). Italian Pavilion, thanks to the chosen multimedia design language, has been presented as a discursive exhibition spaces able to foster negotiation and debate, polarize space, and invite discussion fraught with contradictory views (Macalik et al., 2015). In this perspective, no interpretation is ever a definitively finished and closed one: there is always something to add, and what is said can always be refuted and modified. The Italian Pavilion meaning is never static. Knowledge is something plural and fluid. Along the visit path, any process of interpretation is necessarily subjective.

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Acknowledgements:

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Abstract | The overcoming of the industrial dogma has in fact expanded the fields of the profession promoting the concept of a designer that can operate without distinction in the industrial sector or in that of the craftsman. The large differences in goals and process between the two productive spheres imply however a different approach: industry sets simplification as a priority while craftsmanship finds in the complexity of making its magnification. But where industrial design has established consolidated methodologies, “design for craft” is still developing methods and strategies. The paper analyses some processes and design languages that are the basis of a renewed design dialogue with the artisan sphere.

KEYWORDS | DESIGNER/CRAFTSMAN, LOCAL IDENTITY, DESIGN STRATEGIES, CULTURAL DIVERSITY, DESIGN LANGUAGES
1. Introduction

Modernity as wipe and restart, has interrupted many of the systems of evolution of knowledge that have always characterized the identity of the places. Even the aesthetic systems that underlie the construction of manufactures, whose definition was always proceeded with incremental processes, have modified their constitutive paradigms in function of a renewal of processes and practices.

Ornament and Crime by Loos has sanctioned the birth of a new aesthetic for the industrial product by initiating a progressive cancellation of the decorative aspects in favor of a strengthening of the formal aspects consequent to the functions carried out by the objects. The making of new languages, first outlined by the Bauhaus school and then by the Ulm school, has decreed a separation in the aesthetic canons between what is produced by the machine and what is produced by the man; between the geometric purity of the industrial product and the decorative accuracy of the handicraft product.

In this double track of doing, craft cultures, suffocated by the exponential logic of industrial processes, have not been able to build a distinctive identity or elaborate a renewed aesthetic, reproducing too many times consolidated formulas repeated in an uncritical manner.

This inability to innovate has led to the progressive erasure of the development of new decorative elements, whether related to signs, materials or colors developed over time by the productive cultures or to the personalization of the craftsman’s manual know-how. Functional areas have progressively prevailed over expressive ones and that has implied a consequent renunciation of those symbolic, ritual or poetic aspects that underlie the aesthetic definition of objects. Aspects that have always been conveyed by the forms and functions but also by the sign apparatus that accompanied them. The traces, the decorations, the chromatism present in the material cultures contained iconographic and symbolic matrices at the base of the identity of each culture. In contrast, Design has developed its own universal aesthetic shared and replicable and consequently aesthetic “forgetful” indifferent to the relationship with geographical territories and cultural territories.

The need for simplification implicit in the industrial process has married a formal and aesthetic purity that has dominated all areas of design application. And this aesthetic corrective procedure has been further strengthened by the modification of the project instruments. The start of digital graphics with the supremacy of the three-dimensional on the two-dimensional has moved even more attention towards the shape (the three-dimensional modeling involves an imbalance towards the creation of shapes and makes difficult the application of decorations on the surfaces) pushing the ornament to be “added element” and not “constitutive element”.

The tendency to simplification is a trend towards homologation; Design as an industrial culture has always been a conception of unity seen as uniformity, motivated by the unlimited reproducibility of its products, which has progressively cancelled the elements of diversity between the places.
Figure 1. Il lavoro dell’artigiano - Alfredo Quaranta, insegnante di materie plastiche Foto ItacaFreeLance
But Design is also a changing discipline, pervasive and in continuous transformation that, in the evolutions of the end of the last millennium has begun its mutation becoming no longer at the exclusive service of the industry (design as the project of the industrial product) but of the entire production chain, to the point of progressively contaminating in our country the territories of the craft ¹ used first as a field of formal experimentation (see the role of craftsmen in the construction of models before the advent of 3D printers) , and later, called to the rescue of craft for its baggage of competences and planning, proposing specific strategies of innovation aimed at considering the product as a cultural expression of a territory.
In a systemic approach design becomes an instrument of connection between all the actors of the territory, “Design... is the common thread of a story that winds between experiences of valorization of traditions (languages adapted to local materials), skills (product quality) and actions in the sector” ². It is as a result of the renewed scenarios, and in coherence with the specificities of our production culture, that Italian Design looks today at the territory as a cultural humus that can fuel innovation. But all this involves a rethinking of the generative practices of the project.

2. New practices

The productive culture today pursues a new strategic vision in the balance between local and global; a practice that can oppose the hegemonic vocation of globalism and nourish diversity again by placing it at the basis of a new cultural season.
A renewed approach of design to craft systems implies a reconsideration of design methodologies. On the one hand it is necessary to replace the thought/action synthesis that has always characterized the traditional craftsmanship, with a split between the design act and the build act aimed at fostering the contribution of the designer, on the other hand, it is essential to deal on the design processes that lead the project.
The design for craftsmanship, in fact, never starts from a white sheet of paper but from a complex network of signs, materials, techniques, uses, which constitutes the cultural fabric of every productive territory; at the base of the design solution there is a process of appropriation that consists in detecting, deciphering and interpreting the characteristics of

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¹ The widening of the visual of the design towards the territories of the craftsmanship in our country starts at the end of the sixties, on the margins of a radical season that had questioned many of the constitutive dogmas of the discipline, highlighting the need to develop new design languages
the material culture and then conceiving the idea of intervention. The project finds support in the cultural identity to move in the space of ideas driven by technical-graphic skills.

A renewed design approach therefore raises the issue of the transfer of knowledge relating to cultural heritage. The filing of tangible and intangible cultural assets is a process that for most European countries has started since the end of the 1970s in parallel with the theoretical formulation of cultural heritage within the Unesco. The National Archives of the countries of the European Union collaborate within a working group called the European Archives Group (EAG), established in 2006. Currently the main archive site at European level is the Europeana website, a European digital library that brings

Figure 2. Roberta Morittu per la Biennale dell’Artigianato Sardo “Domo”, Fotografia di Daniela Zedda
together contributions already digitized by several institutions between the 28 EU Member States. Europeana in turn takes inspiration from the Gallica Project (initiative of the Bibliothèque Nationale de France).

In Italy, the reference web archive for the immense cultural heritage is the National Archives SAN, a point of unified access to national archival resources made available on the web by information systems, digital databases and research tools developed at national, regional and local level by the State, Regions and other public and private entities. Many regions have begun to digitalize their tangible and intangible heritage and make it accessible in the form of web archives. Among these the SRBeC - Information System of the Cultural Heritage of the Lombardy Region the SIRPAC - Regional Information System for the Cultural Heritage of the Marche Region and the SIRPAC of the Friuli Venezia Giulia region, one of the most advanced in the organization of knowledge.

Most of the cataloguing systems in use have an exclusively archival character aimed at protecting the knowledge of the good but not to highlight its technical or formal characteristics which are then those necessary for a use within the design process. This is the direction of the Mediterranean Crafts Archive promoted by the Sardinia Region as part of a field research conducted in Sardinia, Morocco and Egypt, which, in addition to its interest in highlighting contamination in a geographical area as wide as the Mediterranean basin, shows a system of functional filing both to safeguard the knowledge and to their use within the design process and therefore at the service of the work of designers, craftsmen, cultural operators.

The creation and dissemination of virtual archives and more in general of all ITC systems, in connection with new design models (from Design Community to Neo Local Design to Design 4.0), is characterizing the design processes of the New Design feeding a new season in terms of the processing of innovations and recovery of the elements of diversity. Starting from these theoretical matrices, a cultural movement has progressively been generated, working with different approaches, on an updated identity reproposing.

Is this what is happening in many areas, a research direction “all Italian, which makes the recovery of its local material culture the opportunity to investigate popular visual languages and, through them, rediscover - sometimes claim - identity values”3. A new design approach that once again feeds diversity by putting it at the basis of a new cultural season. A new figure of “ethnographic designer, experimenter is being born alchemist; capable of becoming artisan” (Sironi 2018).

At the same time a return to manual work and consequently to the recovery of many decorative, symbolic and identity aspects is progressively infecting the new generations of designers who identify in the union between the culture of the project and the culture of making a workable path. This union in our country can become strategic if linked to a transmissibility of knowledge that can give continuity to territorial identities. It is an ever more widespread cultural movement, with close connections with the DIY movement and

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3 Piscitelli D. Lo sguardo “strabico” della grafica popolare in MD Journal n.7
with the phenomenon of Makers, but with some prerogatives linked to the specificity of our cultural and productive heritage.

3. New languages

A conception of the project that starts from connotative elements belonging to the cultural heritage of a territory, implies at the same time a reconsideration on the reformulation of the aesthetic codes. The renovation and adaptation of the decorative apparatus today represents a complex challenge for a new vision of design. The theme of languages is the main theme of the connections between craftsmanship and design, but more in general the main theme of the debate on the role of design in the defense and development of cultural diversity, equally declinable in the object system, in communication systems and in the use of new technologies.

The task is on the one hand to re-read the forms, the decorations and the symbols that come from the phase of acquisition of knowledge, on the other hand the elaboration of new signs that can graft a “innovation aware” without falling back into formal folklore.

A return to the complexity that characterized the differences between cultures and motivates a renewed interest in the decorative graphic sign, expressed for example by the rereading of patterns and textures belonging to different cultural territories.

“Today designers and architects feel freer in designing objects and environments in which the decorative aspect can be developed and expressed through a new sensibility, given by the use of materials and textures that are manifested in their physicality without constraints of subordination to what may be the formal aspects, so dear to the Modern Movement, overcoming the limits of the concept of form-function belonging to a period that seems by now distant”⁴.

In the history of civilization the decoration of artifacts through the repetition of ornaments such as patterns and textures has represented among the most precious and refined skills aimed at increasing their value and ornamental tradition and makes manifest the artistic culture of a people (Gombrich E.H. 1979). The manufacturing cultures, and in particular those related to some specific materials (textiles, ceramics, stones and wood in the first place) have developed and reworked over time a heritage of iconic signs and figures that have consequently built the identity of the territories.

So, it was for almost all peoples; at the different scales of the project the patterns have become a characterizing element that has connotated the architectures, defined the interior environments, characterized the system of objects. The reinterpretation of patterns in an identity key characterizes the recent work of some architects in the international context.

“Despite the modernist emphasis on minimal forms, the advent of international style and the substitution of crafts with the rise of mass production have led to a systematic

elimination of ornament, we are experiencing its awakening in contemporary architecture through experimentation with new digital technologies"\textsuperscript{5}.

It’s the case, for example, of the architect Kengo Kuma that works on the interrelation between patterns and layering within the architectural project. In Japanese textile art and printing, the use of patterns has a long tradition in Japanese architecture, layering is an established technique that has already inspired artists such as Frank Lloyd Wright and Mies Van der Rohe. In his research laboratory at the University of Tokyo, Kuma has developed a technically sophisticated methodology that combines patterns and layering into a single structural concept.

Contemporary design has also often used textures to characterize the surfaces of objects. So it was in Italy in Gio Ponti’s projects: in the vases made of hand-painted majolica, such as the \textit{Vaso Prospettico} (Richard Ginori 1925), in the polychrome coatings of the D.153.1 armchair designed in 1934 or in the textures made and exhibited in the 2014 exhibition, “\textit{Trame: le forme del rame tra arte contemporanea, design, tecnologia e architettura}”, entirely given by the game of intertwining with copper, or still in the plots proposed in the collection of carpets inspired by the patterns that characterize the paintings, decorations, flooring and ceramics.

But this has also happened during the avant-garde season of “80s.

The genesis of \textit{Memphis} sank its roots in the experimental approach to industrial design that Sottsass and De lucchi had carried out during their experience within the \textit{Studio Alchimia} and the contemporary proximity to the concepts of radical design. In the mind of Sottsass, the group Memphis gives the objects a symbolic, emotional and ritual thickness. The principle behind strange and monumental furniture is the “emotion before the function”.

The Alchimia group projects and designs objects in which the texture is the protagonist, they do not care if it is an object, or sculpture, architecture, scenography, art or other, but acts to cover the world of decorations, outside the project, in a state of disciplinary, dimensional and conceptual neutrality. For Alchimia the methods of conception and production can coexist and mix, within a basic concept, that of “variation”. Given the insufficiency of the project to face the world, it is replaced by drawing, which becomes a work without principle, without end and without justification, a formalistic network of styling and visual references. Language games are intertwined, combined and repeated in the decorations of drawings, paintings, sculptures and objects. The same works of Ugo La Pietra, of 1966/1968, “\textit{the tissue structures}”, are drawings to communicate an idea matured through different experiences, which have their roots in informal painting.

In contemporary design there are many examples of a renewed use of textures as elements of design definition. Think of the work of Patricia Urquiola and Elena Gerotto for Paola Lenti’s Crochet collection where the flowers and leaves that make up the rug are crocheted and sewn by hand on a synthetic support network.

But the use that the new Design makes of patterns and textures combines aesthetic renewal with identity characterization. The texture is a means, a medium, whose communicative potential can be grasped when the reference value to local cultures and territories is relevant. The decorative aspect of the surfaces of artisanal productions makes accessible (Calabi e Scuri 2015) the memories of material culture. Through the chromatic complexities and the chosen signs, the texture design reveals to the expert artistic influences, geographical and sociocultural origins as would a text, it offers to the reinterpretation of those who know the written language.

Figure 3. Patrizia Cara Anfora Anulare Cotto Orbace

“Surfaces are therefore medium and textures like writings which narrate memories and traditions. Signs that translate signs”

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6 Ciarrocchi M., Calabi D., Texture Design and Environment, in AA.VV a cura di Mario Bisson, Environmental Design - 2nd International Conference on Environmental Design
It is in the new craftsmanship that the most interesting experiments on new aesthetic languages are being developed. The decoration reopens a collective identity, which declines and innovates tradition.

Among the most interesting experiments in this direction is the work of the Tuscan Giulia Cioli whose woolen patterns reproduce the lines of the Tuscan landscape in an original reading of the relationship between sign and identity, the surfaces of objects by Francesco Pace Sicilian designer for which the pattern is evocation of matter.

In the same direction Sardinia has been, in recent years, a virtuous territory of experimentation for the existence of an iconographic heritage still alive (and well protected by a strategic vision of regional policy) and a cultural humus that has allowed its re-reading and evolution. A direction that starting from the intuitions of the “magical world” of Eugenio Tavolara in the fifties, lands in the most recent experimentations like *Domo* (Sassari 2009), *Sardiska* (Cagliari 2018), *Punti di Frontiera* (Cagliari 2018) and in the work of designers such as Roberta Morittu, Annalisa Cocco, Angelo Figus, Eugenia Pinna, Ivano Atzori and Kyre Chenven, Paulina Herrera Letelier and Carolina Melis.

*Figure 4. Giulia Cioli Traccia 2 Tie inspired by the textures of the cathedral of Siena*
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Metaphors as Knowledge Activators in Data Visualizations: the case of the Archipelago of Calvino's literary works.

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Abstract In this paper we present the outcomes of a collaboration between scholars and designers aimed at exploring the potentials of data visualization in support to the creation of literary critique. By exploiting action research, we envisioned a methodological integration between data visualization, design and literary critique aimed at the representation of humanistic data and knowledge. In our work we made an extensive use of the visual metaphors (the natural landscape), with the aim of activating domain experts’ knowledge and externalizing inconsistent and ill-defined information. In conclusion we argue that similar methodological integrations are important contributions that communication designers can bring to the field of Digital Humanities.

KEYWORDS | DIGITAL HUMANITIES, DATA VISUALIZATION, VISUAL METAPHORS, KNOWLEDGE ACTIVATION, ITALO CALVINO
1. Introduction

The work presented in this contribution lies in the field of Digital Humanities (DH): a multidisciplinary area of study, research and teaching where humanistic disciplines and computing come together (Caviglia, 2013). This context is multidisciplinary by definition and can see the collaboration of researchers coming from very different backgrounds.

In this contribution we present the case of literary scholars and information designers using data visualization to comprehensively represent the narrative production of the Italian writer Italo Calvino. The specific challenges related to this case study are addressed in section 3 (and in particular in 3.1 Goals and Challenges). Hereafter authors will introduce their approach to data visualization for Digital Humanities and the aim of this research.

Data visualization and its practices have been used in several fields during the last decade (D'Ignazio, 2018). This is due to their capability to give shape to complex phenomena and to make them accessible both to general public and domain experts. Humanities are no exception and have been experimenting similar practices, at times leading to interesting and meaningful results (Moretti, 2016), at other times pointing to challenges or mismatches (Marche, 2012. Posner, 2015, Uboldi & Caviglia, 2015). In fact, as Druker states, practices of data visualization had sprung from disciplines such as statistics, empirical sciences, business and have been shaped by them according to their needs. Being those disciplines so different from Humanities, data visualizations need to assess a process of critique and adaptation in order to support humanistic inquiry, a process that gives priority to interpretation, ambiguity, inference, and qualitative judgment over quantitative (Drucker, 2014).

Such ‘loose’ and ‘ill-defined’ humanistic approach to inquiry can be partly explained by looking at materials of study of scholars: they usually do not work with quantifiable information but with much more complex matters, that they want to put in relation with culture or human history.

In this context it is very difficult to perform measurements or categorizations (Posner, 2016) and then build data visualizations. Part of the reason is due to the fact that scholars are very much interested in singularities and details (Caviglia, 2013) and not just in the “big picture”. Furthermore, their materials of study are most of the times incomplete, because damaged or just because impossible to be collected in their completeness (Marche, 2012).

The aforementioned considerations are very general and present a nuanced significance depending on the specific object of inquiry. However, it is of paramount importance to acknowledge them, because they put in the foreground the fact that human ability to understand and interpret cannot be directly combined with computers’ ability to analyze massive datasets (Hall, 2013). Computation would come at the cost of reduction and many scholars are reluctant to this loss because it affects their possibilities of contemplation and of identification of connections. Additionally, not every scholar is interested in leveraging the power of technologies to cope with big data and emerging patterns. Instead, they prefer to work with a delimited corpus of documents, that is operable with their traditional tools and
methods. Even if not interested in big data, those scholars still manifest an interest in better understanding data visualization and adopting it within their workflow.

“Is data visualization supposed to help such scholars in their work? How?” This is the question behind the presented contribution, in which designers inquire the production process of data visualization for DH through the iterative process of action research (Swan, 2012; Muratovski, 2016; McCurdy, 2016).

2. Related works

From the perspective of data visualization, it is possible to identify projects that individually focus on some of Calvino’s most famous works: If on a winter night a traveller (Piotrowska, 2019) and The invisible cities (Gianordoli, 2017). Given the combinatorial structure of its index, this last book has also been used as a case study to design an interactive tool aimed at performing multi-level readings (Van den Heuvel, 2016).

More generally, visualization has been previously used to represent individual written works of any genre. Very well-known is the work of Ben Fry (Fry, 2009) On the Origin of species and the same applies to Moretti’s analysis of Shakespeare (Moretti, 2011), or Grayson (Grayson, 2016) analysis of Arthur Conan Doyle, Jane Austen and Charles Dickens.

When we consider the visual representation of corpora of written documents, it is possible to identify many examples that represent documents as elements in a virtual space (Wise, 1996. Chalmers, 1993. Hall, 2013). Even if documents do not inherently have spatial attributes, they are assigned coordinates via computational means so to create a visualization that metaphorically represents a natural landscape. As a consequence, information about individual documents or groups of them can be learnt from their distances and proximities in the landscape, thanks to everyone’s intuitive understanding of it (Figure 1 and Figure 2) (Fabrikant, 2009).
Figure 1. ThemeScape represents documents as part of a landscape and “utilizes innate human abilities for pattern recognition and spatial reasoning. The complexity of the terrain is perceived and analyzed with parallel and preattentive processing which do not tax serial, attentional resources” (Wise, 1995)

Figure 2. Bead information landscape system: scientific articles are represented as elements in a virtual space.
Using a landscape metaphor, or simple cartesian spaces, it is a common strategy used to visually make sense of documents collections. Yet, the ways in which we can calculate elements coordinates are not flawless. In fact, it is occasionally enhanced with human interventions (or human in the loop or touch-ups) in cases in which domain experts notice problems with the overall image produced through the computational means (El-Aassady, 2019). In such cases visualizations manifests their capability to elicit experts’ knowledge by contrast between what they know about the considered topic and what they see in the visualization itself (McCurdy, 2019).

Despite the described examples, it is rare to find cases focused on a comprehensive representation of the production of an individual writer. In regard to Italo Calvino, it is possible to find cases that attempted to represent the author’s most important volumes on a timeline\(^1\) or the combination and re-combination of author’s short stories into collections\(^2\).

The publishing house Arnoldo Mondadori released during the 90s the most comprehensive collection of the written works of Italo Calvino. This collection consists in six volumes part of the series “I Meridiani” and gathers: narrative texts (novels and short stories), essays, letters and other forms of writing. At the time of writing there is no trace of a project that attempts to visually represent the author’s narrative production as a whole. The presented case study is a step towards the fulfillment of this specific gap.

\(^1\) Visualization *Il tempo e le opere* in «La Lettura», n. 368, 16 dicembre 2018, pp. 16-17

\(^2\) Visualization *Il flusso dei racconti* in «La Lettura», n. 358, 7 ottobre 2018, p. 16

*Figure 3. Results of Topic Modelling are manually refined with experts’ interventions aimed at repositioning elements in the space. In this way, users’ knowledge is incorporated into the visualization.*
3. Case study

3.1 Goal and challenges

The presented design artifact is realized in the context of a research project where literary scholars and information designers work together to experiment on new ways to use data visualization in support to the creation of literary critique and to the representation of humanistic knowledge. The production of the Italian writer Italo Calvino serves as use case.

Our main goal was to produce a visual representation of all Calvino’s narrative writings, a corpus of 229 titles which includes records for novels, short stories, and collections of short stories. Essays, reviews, letters and rewritings of the author were deliberately kept out by scholars’ decision. The resulting visualization was supposed to be a tool for literary scholars, and it is designed to help them in the process of producing literary critique.

In a first place, the representation of the corpus is a challenging task because data in itself is very heterogeneous. A novel is very different from short stories: the former is a book while the latter could be only a few pages long. Collections appear very similar to novels, in the sense that they are volumes, but in fact they are different in their essence and are nothing more than the grouping of many short stories. Short stories that are part of collections were selected upon author’s artistic taste and his tastes about themes, styles of writing, experimentations, political and cultural influences and many other aspects.

Moreover, short stories can be released on magazines or newspapers and then be published into one or more collections. As a consequence, they can present multiple publication dates and the earliest is not necessarily the most important from scholars’ point of view. To represent in a single visual artifact all those heterogeneous and ambiguous elements and properties is certainly the first challenge to cope with.

Secondarily, the visualization ought to take into account author’s different periods (political, cultural and artistic), that are very relevant aspects, but are very difficult, if not impossible, to be quantified. In fact, commonly used analysis strategies such as NLP (Natural Language Processing) are not able to grasp such information. They are able to quantify features of the text or even to provide summarizations, but to do so they break up the text in individual entities. Literary choices made by the author reside in details like the pairing of particular words, images, rhetorical figures and other literary instruments that get destroyed in this computational process, also named ‘bag of words model’ (Zellig, 1954). For this reason, the second challenge lies in the identification of a method to make such aspects emerge and become visible.

The researchers involved into the project identified a solution based on a methodological integration (Kelle, 2007) between quantitative and computational approaches proper of data visualization and qualitative and speculative ones proper of design (DiSalvo, 2012).
3.3 Design process

The design process of the presented visualisation followed a strongly iterative process. Several intermediate results were produced and evaluated in order to understand how to proceed. This process resembles the one of action research (Swan, 2012. Muratovski, 2016. McCurdy, 2016).

To quickly bootstrap the project and test hypotheses, we started using known solutions and tools. Specifically, we started from a contour plot visual model made in RAWGraphs (Figure 4) and we then modified it in Adobe Illustrator (Figure 5 and 6).

*Figure 4.* The contour plot was generated within RAWGraphs, using the first publication date on the horizontal axis and texts length in characters on the vertical one.

*Figure 5.* The isometric transformation performed on the contour plot.
Figure 6. *The first attempt to produce a visualization capable of resembling a territory.*

In this attempt, the visual resemblance with a hilly territory was visible and the metaphor of a natural landscape was operative already. However, the visualization wasn’t effective yet. In fact, precisely because of the metaphor, scholars perceived as inappropriate the position of many elements that happened to be closely positioned in the space. Those texts didn’t share anything if not a similar length in characters and first publication date. Moreover, this resulting visualization didn’t display all texts as singular graphical elements because some of them result merged in the same morphological agglomerate (Figure 7).
Figure 7. The first visualization of the territory was not effective since it grouped the texts according to their length in characters and date of first publication, often merging texts that overlapped into morphological agglomerates. This relationship did not allow all the texts to be seen and was not meaningful for representing the entire corpus of Calvino’s literary work overtime.

The metrics we used to produce the contour plot brought many works to be close in the space without paying consideration to important aspects such as texts stylistics or their importance to the author. Even if such features cannot be directly quantified and visualized, other information could be used to indirectly display them: by looking at this first visual attempt researchers decided to experiment with a displacement of elements based on collections.

If compared to dates and other metrics, this information is less quantitative and less comparable but, at the same time, is more informative and more authorial. Indeed, the fact that a text is part of one or more particular collections, tells much about its framing into the writer’s career, its importance, its stylistics and other aspects that are particularly relevant to a domain expert.

Collections can be seen as partially overlapping groups of texts, kept together by the relationships among themselves. In other words, we can imagine drawing a link between every pair of texts that appear in the same collection. This operation results in a network structure. Since network graphs are visual tools suitable for representing such kind of information, data was visualized into Gephi (Bastian, 2009) as an un-directional force layout graph, with nodes spatialized with a Fruchterman-Reingold (Fruchterman and Reingold, 1991) algorithm and sized according to their length. Nodes coordinates were subsequently extracted and used to produce the contour-plot model of RAWGraphs and the resulting SVG was reworked with a vector editing software to “reboot” the metaphor of the landscape.

Figure 8. Gephi was used to position the texts in a space where the relationship between them and their chronology were significant (image on the left). Then, the coordinates of the nodes were used to produce the contour-tracing model and recreate the landscape metaphor (image on the right).
From this second result it is clearly visible the fact that writings could present very different behaviours and not all of them were published into collections. According to the visualised data, novels were all the time published independently and many stories were released only on magazines. Fruchterman-Reingold algorithm worked well for depicting that part of the territory occupied by connected elements: the closer they are in the space, the higher the number of connections they shared. However, the chronological dimension was almost completely unreadable, and the position of unconnected nodes is assigned randomly.

Again, reading the placement of texts through the metaphor of the natural landscape suggested the idea that some of their positions were meaningful, while others were inappropriate and needed to be fixed. A proper territory in fact, needs to present a morphology that could be read in a consistent way across all of its elements (Figure 9).

The metaphor, in fact, is capable of activating brain abilities of pattern recognition and spatial reasoning that are innate in humans; therefore, the reading of the visualization takes advantages of pre-attentive processing and ease the burden on attentional resources (Wise, 1995).

![Figure 9](image)

*Figure 9. The computational position did not correctly represent all the nodes. In some cases, as shown in the image, the algorithm privileged the relation variable over the temporal variable or vice versa. The text “Diario in clinica” published in 1963 should be placed next to the other texts of the decade.*

The position of those misplaced nodes needed to be modified, but it was not possible to identify any rigorous—or computational—method for doing so. For this reason, the team decided to adopt a solution based on a qualitative intervention on the visualisation: to touch-up the positions assigned by the spatialization algorithm, manually suggesting where elements should appear in the space (Figure 10).
Figure 10. Many drafts were printed and manually annotated to decide how to fix anomalies in elements positions.

In an iterative sequence of transformations and evaluations, isolated nodes were grouped by years of first publication and successively scattered around the main islands of Calvino’s collections, following a circular shape. Also, some nodes of the collections were at times repositioned, assigning a better position according to scholars’ reflections on chronology and their reading of the territory. Position of nodes became relevant, allowing to read and understand the logic of this territory as a whole.

Nodes coordinates were once more retrieved from Gephi, but instead of using the contour-plot model of RAWGraphs, a custom interactive representation was produced using D3js (Bostock, 2011).

Figure 11. The iterative work of design, evaluation and adjustment of the nodes started with the use of network modelling tools (Gephi) to obtain the coordinates of the nodes (Json) and their visualization using the D3.js library. This computational process was evaluated by humanists, who modified the calculated positions of elements drawing from their knowledge.
After the review and annotation process, the process was repeated, altering the result according to the manual intervention.

Figure 12. The final landscape is inserted in an interface that allows the exploration of the texts. In the image, the colouring of the "mountains" in the landscape represents the chronology from green (1943) to blue (1985).

3.4 Outcomes

The Archipelago of Calvino’s Literary Works has been made available mainly in the form of an interactive webpage, with the possibility to search, filter, zoom and pan as if the visualization were a real interactive map of a territory.

Visualisation presents three islands surrounded by a big ring of smaller ones (Figure 12). Islands represent elements that are kept together by collections, whereas external ring is composed by the remaining written works, those that were not part of any collection. External elements have been manually scattered around according to first publication dates.

3 Find the visualization at: http://atlantecalvino.unige.ch/
and by following a clockwise direction that starts from the south of the Landscape (its central-bottom part).

For the elements part of the first island (the biggest, on the central-left portion of Figure 12), chronology had been partly sacrificed in favour of the grouping in collections. Still a general sense of time emerges from the artwork, because dates had been fuzzily taken into account in the manual orientation of collections and elements (Figure 13).

Figure 13. *Detail of the first island: elements at the bottom are mainly green (older) than elements at the top, which are mainly blue (newer). Elements in the center are positioned according to a compromise between date and membership to collections. The position is the result of scholars’ intervention.*

The visualisation provides an immediate overview of all of Calvino’s written works creating a nearly physical sensation of typologies and quantities. The diameters of collections oppose the elevation of novels, suggesting the idea that short stories are an important area covered by the author’s production over his forty years long career.

The visualization also shows the multiple acts of re-mixing that the author performed on his own stories, together with the fact that earlier collections were less compact and more chaotic than the later ones. This is clue of the writer experience and awareness developed during the years.
4. Discussion

The process of creating literary critique is based on memory efforts and on scholar’s capabilities of creating connections with culture and human history. The process of creating data visualization is usually based on quantifications and generative representations. This contribution reports on a viable way to integrate the two methodologies in order to design visual representations that are partly based on quantitative data and partly based on experts’ elicited knowledge.

It is not unknown that the realization of data visualization is a biased process (Kirk, 2016) which includes many choices that influence final outcomes. When creating the visualization discussed above, a key aspect had been to decide consciously on what to visualize among the many different data available and, once done that, to decide not to completely trust the result provided by the machine.

As described earlier, quantitative and comparable metrics were dropped in favour of the inconsistent and ill-defined information about collections. Although not an immediate decision, it is interesting to notice that this information is a direct result of Calvino’s decision and presents an evident curatorial nature. Moreover, being so loose, it was the data dimension that less prevented scholars’ tacit knowledge to emerge. The monographic setting in which this work had been carried out calls in fact for a deep understanding of the author’s corpus through his personal history, his periods of break, his personal milestones, his professional achievements and the influence of external factors (like World War II and Partisan Resistance).

Some parts of that information could be derived, some others could be potentially embedded, but many others appeared as too complex to be fit into data. This explains the fact that metrics were too superficial to address needs of scholars, even if they perfectly fit the available tools for data visualization that are currently available.

This case study proves that visualization designers have to learn how to deal with ill-defined and incomplete information, even if it is hard to be exploited properly within data visualization tools. Precisely because of this fact, communication designers find themselves into an advantageous position if compared to other practitioners involved in data visualization, thanks to their expertise of manipulating graphics and images.

In the reported case, the use of a visual metaphor proved to be a particularly useful strategy, not only because it helped in the intuitive understanding of the visual outcomes, but mostly because it nurtured acts of speculation, pushing experts to ask the question: “where should this element be positioned to make sense within the context of this landscape?” For this reason, we can say that it represented an element of paramount importance in guiding the process of overcoming the limitations of tools for data visualization and for bringing the scholar within the loop of visualization.
The resulting visual artifacts are supposed to be a support for scholar’s inquiry once completed. However, during their creation scholars actively engage with them, fostering the emergence of reflections, questions and eliciting their knowledge to emerge. For this reason, it is possible to say that visualization actively supported their process of critique, stimulating their work of memory and connection.

Nevertheless, they also show criticalities. This kind of visualizations require readers a lot of time to be digested, being so strongly customized and distant from ordinary visual models (e.g. bar charts or scatterplots). Some researchers pointed out that speed and efficiency better resonate with other fields of studies and that a visualization capable of slowing perception down is actually a desiderata in DH (Hinricks, 2018. Bradley, 2016). To compensate, it is important to pay even more attention to the formal aspects of visualization, namely titles, legends, scales, etc. In addition, such visualizations may then require to be combined with a narration, in order to better explain the richness of the embedded information and to convey authors’ aims and remarks.

5. Conclusion

Within this contribution we presented the outcome of an interdisciplinary work that brought together information visualization and literary studies for the making of an interactive data visualization designed in support to literary inquiry.

Creating this visualization has been of paramount importance to align habits and fashions of the two backgrounds involved, to develop shared sensibilities and eventually to start to understand how and at which extent it is possible to combine the work of critique with the work of creation of data visualizations.

The design process of this visualization pointed towards the overcoming of limitations of tools for data visualization. Such tools rarely allow for a complete exploitation of ill-defined and inconsistent information, which is however very common in the field of DH. The design process we presented, saw a methodological integration between methods of data visualization and design, with a particular use of the visual metaphor of the natural landscape deployed in order to elicit scholars’ knowledge and bring them in the loop of visualization.

Similar methodological integrations, oriented towards the exploitation of inconsistent and ill-defined information, emerge as important contributions that designers can provide to those scholars that aim to create literary critique with the support of data visualization.
References


Metaphors as Knowledge Activators in Data Visualizations: the case of the Archipelago of Calvino's literary works.


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Acknowledgements: this research is conducted in the context of the project Atlante Calvino: literature and visualization. The project is funded by the Swiss National Science Foundation (SNSF) and it is led by Francesca Serra, Professor at University of Geneva.
Patient Autonomy Indicators: a knowledge visualization tool for patient autonomy support

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Abstract | Patient autonomy indicators (PAI) template is a knowledge visualization tool for caregivers, aiming at supporting patient autonomy at the end of life by collecting and analysing patient data. We design PAI based on the Problem-Solving Cycle and the Event System Theory and iterate it through focus interviews. The writing of PAI is about a patient’s story and shall be designed by three dimensions: narrative, numbers, and visualization. It involves collectivizing patient knowledge and provides a service-oriented process. In such a story, knowledge is the ability of terminal care services to impact patient autonomy. We conducted a PAI experiment with the support of four medical institutions in China. We concluded that PAI can help caregivers calculate and characterize patient knowledge, inspire their imagination and empathy, and perform suitable intervention activities for patients.

KEYWORDS | PATIENT AUTONOMY, PATIENT KNOWLEDGE, KNOWLEDGE VISUALIZATION, PATIENT SUPPORT
1. Introduction

Services in the modern world must receive and place thought and action in the center of their design (Secomandi, et al., 2011). Patient-centered services are essential to the doctor-patient interaction. In practice, people often adopt uniform service standards and ignore the assessment of patients' individual needs. The universally accepted ethical principle in the Western world is the promotion of patient autonomy. The concept of control related to autonomy affects a person's sense of dignity, helps reduce suffering, and improves the quality of life (Lavoie, et al., 2011). Therefore, the patient's beliefs and values serve as the basis for determining their needs and assessing the appropriateness of alternative interventions. However, autonomy is a multidimensional, plural, and multidisciplinary concept. It is important to analyze the characteristics of patient autonomy to guide the services. Patient autonomy analyses are currently supported with some scales, such as the Patient Autonomy Questionnaire (PAQ) and concise 4-item version (PAQs) (Vernooij-Dassen, et al., 2005). These tools require patients to have a clear awareness and relatively functional physical fitness to provide benefits. Many end-of-life patients are not in this condition. Some tools also assist in reflecting the autonomy of patients, such as France's national AGGIR, SMAF (Hébert, et al., 1988), and the ADL scale (Katz, et al., 1976) for supervising elderly customers. The Palliative Performance Scale version 2 (PPSv2) is most commonly used to predict the prognosis of patients and can estimate the workload. These tools are useful for fair medical resource allocation. However, changes in the disease lead to changes in the patient's ability to reason and move freely, i.e., fluctuations in their autonomic performance. How to evaluate and promote a patient's autonomy, especially for end-life patients, is still a challenging question.

We hypothesize that a close connection between patient autonomy and specific care practices will better guide autonomy support. This paper proposes an analysis framework, namely, the patient autonomy indicators (PAI) template, which is a tool for the caregiver (such as the doctors, nurses, social workers, service providers, etc.). It describes information in three dimensions event space-time, event strength, and patient condition, to analyse patient autonomy and design support strategies. PAI is a means to ‘decentralize’ knowledge resources and make patient knowledge easy to intervene by the caregiver. This template restricts the transformation of personal tacit knowledge into practically measurable and unambiguous operational understanding.

The PAI template has been tested in four medical institutions by six medical staff with more than ten years of medical experience. The results showed that the template can help improve autonomy support services more accurately, giving caregivers more confidence when facing end-of-life patients. The PAI template is flexible enough to handle different patient autonomy when used by care providers with different experiences. It can be used iteratively for better evaluations and strategies.
2. Beneficence and patient autonomy

The balancing of beneficence and patient autonomy is a critical issue in patient support because autonomous decisions are made intentionally and with a substantial understanding of and freedom from controlling influences. On the one hand, the highly technological nature of modern medicine and the patient’s fear of erroneous decisions have strengthened the traditional paternalistic style of healthcare (Collopy, 1986). Illness deprives patients of their autonomy, and doctors define the patient’s interests (Veatch, 1981). Therefore, it is hard to empower patients, and it is essential to emphasize the patient’s agenda for patient empowerment, especially for dying patients.

On the other hand, calls for patient empowerment and autonomy in the sensitive context of palliative care may lead to an underestimation of the vulnerability of patients and increase conflicts surrounding care (Wilson, et al., 2014). The concept of autonomy support is sometimes misunderstood as to suggest that patients should be free to make their own medical decisions with little or no advice from providers. Van Eys (1991) states: "To be a patient is to be out of control. To be a patient is to be dependent. It is not the medical system that does that. It is the disease." Many patients, especially terminal patients, cannot cope with relatively complete independence and must rely on others (Ende, et al., 1989).

Solving this problem requires reasonable preparation or education of the caregiver. The caregiver is required to explain how to choose a service strategy based on the patient's wishes, knowledge, and understanding. Therefore, when and how to present and interpret a patient’s knowledge is a significant challenge (Richards, et al., 2013). Caregivers should actively approach patients, understand their perspectives and feelings, and provide treatment and service options and relevant information when appropriate. Doctors in emergency care settings can quickly identify patient needs and reliably assess risks and benefits (Mc Cullough, et al., 1985). Palliative care faces more daily ethical issues and events (Christie, et al., 1986) that involve the patient's characteristics, such as personality, family, culture, and education. Patients in Asia have lower autonomy than patients in Europe and the United States (Mo, et al., 2012). Physicians traditionally discuss patient issues with the family rather than the patient because of the Confucian culture (Mo, et al., 2012). Palliative care is a new area in China, we need to pay more attention to the problem of patient autonomy. Although medical personnel can gain insight into the patient's world via instant imaginative identification behaviour, including the patient's unconscious motivation and attitude towards disease (Balint, 1955), the uncertainty of imagination (Scott, 1995) by caregivers can hardly lead to good results. Eppler & Burkhard (2004) defined

“knowledge visualization aims to transfer insights, experiences, attitudes, values, expectations, perspectives, opinions and predictions, and this in a way that enables someone else to re-construct, remember and apply these insights correctly”.

Therefore, we designed the PAI—a knowledge visualization tool to directly connect the vision of the caregiver with the problems or phenomena of patient care services. We use
narrative, visual, and number to present patient knowledge and promote the caregiver's reasonable moral imagination (Scott, 1997).

3. Design and experiment

3.1 Developing PAI

This section first describes the three stages of the design and implementation and then expands on the details of each stage.

Stage 1. Based on literature review and field surveys, we developed a prototype of the patient autonomy indicators using a problem-solving cycle (Sternberg, et al., 1986) and event system theory (Morgeson, et al., 2015).

Stage 2. We organized a group discussion to iterate the prototype for improvements.

Stage 3. We designed and conducted experiments that required participants to use the PAI for one month in a real context. The participants were interviewed for their feedback.

The design of PAI started with our two-month field surveys in the Affiliated Hospital of Jiangsu University. We want to investigate how doctors and nurses can help end-of-life patients improve their quality of life. And we found two problems: First, the patients at the end of life are weak and have difficulty withstanding the routine consultation survey, but we still need to get information about patient needs. Second, some tools or scales completed by the caregivers measured patient autonomy, but they were less relevant to clinical practice. Patient autonomy fluctuates with the disease, and we must analyse specific issues. Therefore, our hypothesis is that patient autonomy is closely related to a particular reality, which may reasonably solve the problem of supporting patient autonomy. Therefore, we performed an exploratory study. Theory-based exploratory research helps ensure content validity in the scales (Hinkin, 1998). We considered that the differences between the patient’s personality and the subjective evaluation of the caregiver may require iteration of the solution. We constructed the framework of the prototype with the theory of the problem-solving cycle (Sternberg, et al, 1986) that includes the steps below:

- Recognize or identify the problem;
- Define and represent the problem mentally;
- Develop a solution strategy;
- Organize knowledge about the problem;
- Allocate mental and physical resources for solving the problem;
- Monitor his or her progress towards the goal;
- Evaluate the solution for accuracy.
“The cycle is descriptive and does not imply that all problem-solving proceeds sequentially through all stages in this order” (Pretz, et al., 2003). We can use the steps of problem-solving cycle flexibly and we designed PAI usage steps based on the steps above as below:

- Identify and represent the problem or phenomenon (Problems encountered during patient care);
- Solution strategy (Ways of solving the problem);
- Organize knowledge (Organize patient knowledge from three dimensions: time and space, event intensity and patient condition);
- Measure (Six operational definitions for the above three dimensions);
- Score (Statistics on the allocate section);
- Patient autonomy support strategy (Designing action strategies that support autonomy based on ‘solution strategies’);
- Feedback (Caregiver describes patient’s response after experiencing supportive autonomy strategies);
- Evaluation (Caregiver’s evaluation of patient autonomy support strategy based on feedback).

We used the event system theory (Morgeson, et al., 2015) to divide the section of organizing knowledge, which helps provide a meaningful description of the development process of events. “The event system is a complex of three interacting event components, including event strength, event space, and event time” (Morgeson, et al., 2015). We divided knowledge sources according to the three components and added patient condition items to organize patient knowledge more comprehensively. We set specific secondary indicators for the measure section (Figure 1) and use a 5-level Likert scale to measure the details of problems or phenomena. The design prototype (Figure 1) shows that the first row is primarily the necessary information of the patient and the caregiver. The steps are in order from left to right in Figure 1.

<table>
<thead>
<tr>
<th>Identify and represent the problem or phenomenon</th>
<th>Organize knowledge</th>
<th>Measure</th>
<th>Weak (1) &lt;---- -&gt; Strong (5)</th>
<th>Patient autonomy support strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Gender:</td>
<td>Age:</td>
<td>NO. Doctor &amp; Nurse:</td>
<td>Score</td>
</tr>
<tr>
<td>Identify and represent the problem or phenomenon</td>
<td>Organize knowledge</td>
<td>Measure</td>
<td>Weak (1) &lt;---- -&gt; Strong (5)</td>
<td>Patient autonomy support strategy</td>
</tr>
<tr>
<td>Space &amp; Time</td>
<td>Space</td>
<td>Time</td>
<td></td>
<td>Feedback</td>
</tr>
<tr>
<td>Event strength</td>
<td>Degree</td>
<td>Scope</td>
<td></td>
<td>Evaluation</td>
</tr>
<tr>
<td>Patient condition</td>
<td>Expression</td>
<td>Disability</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 1. Patient autonomy indicators (PAI) prototype.
3.2 Iterating the PAI prototype

To improve the PAI, we cooperated with the training group from QELCA (Quality End-of-Life Care for All), Jiangsu China. Eight palliative medical staff were invited in a 2-hour focus interview on this prototype (Figure 2). They are two doctors, four nurses, and two social workers.

Figure 2. Palliative medical staff participate in the interview of PAI prototype iterations.

The views and opinions collected included three aspects. The first step was to make the concepts and category relationships clearer in the PAI, such as, “Many concepts in the table, and it is a little hard to distinguish the relationships.” And “I need time to understand these categories and their meanings.” The second step was to simplify the quantitative calculation part of the PAI to make it easier to operate, for example, “I think I have no time to calculate the ‘score’ section by myself because I am busy” and “What is the familiar standard code that can be used as a reference in the ‘measure’ section?” The third step was related to patient privacy: “We write some details of patient life that they may mind being seen by others.” From then on, we iterated the scale (Figure 3) to optimize the visualization using a gradient ramp to guide the fill level from left to right, from objective observation to subjective evaluation.
The quantization part was simplified into three increasing levels with the vocabulary familiar (such as indoor, area, bed/chair, min, hour, etc.) to the caregivers, which made it easier to judge. We emphasize that people who use PAI should keep it properly. We also deepened the color saturation of the design of the patient information portion, which increased the difficulty of reading the information (Figure 3) to reduce the possibility of patient information leakage. In the ‘score’ section, it is a simple measure to make statistics on the degree of indicators and create an overall impression of patient autonomy. According to the focus interview, we also map out the scoring indicators for ‘score’ section (Table 1).

<table>
<thead>
<tr>
<th>Score</th>
<th>Autonomy level</th>
<th>Support strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>6—10</td>
<td>Weak</td>
<td>The caregivers should establish a smooth communication channel with the patients’ agents, such as family members.</td>
</tr>
<tr>
<td>11—14</td>
<td>Moderate</td>
<td>The caregivers should make supportive behaviours and cooperate with patients’ agents to support patient autonomy.</td>
</tr>
<tr>
<td>15—18</td>
<td>Strong</td>
<td>The caregivers should develop patient autonomy individually or in collaboration with stakeholders.</td>
</tr>
</tbody>
</table>

Caregivers can use it to determine the extent and frequency of supportive behaviors, such as attention to needs, empathy, care, recognition of individuality, information provision and dignity (Dickert, et al., 2009) to respect the patient’s autonomy. The use of these indicators is elastic, and we cite similar cases in the experimental section according to the principles of indicators to provide a reference for the participants. Overall, the higher the patient's autonomy, the more comprehensive and supportive behavior is required. Caregivers received patient’s feedback after service and evaluated the effects of describing and supporting the patient's autonomy.

The PAI is a complex form of reporting that combines narrative, numbers, and visualization. It uses the three dimensions to organize the patient impression. First, PAI has some form of knowledge ‘narrative’—a scenario, a storyline of patient knowledge, and a storyline of how problems arise. Knowledge narrative focuses on how patient knowledge resources interact and enable caregivers to intervene. Second, PAI identifies a set of challenges for patient knowledge analysis and caregivers’ efforts to support patient autonomy. A patient’s story includes a knowledge narrative (the section to ‘Identify and represent the problem or phenomenon’) and a statement that supports autonomy (the section to ‘Patient autonomy support strategy’). It aims to enhance attention to the details of care services.
The PAI also suggests that ‘numbers’ can be attached to challenge analysis to show how they are implemented, that numbers correspond to different concepts and hierarchies and that they show the authenticity of the proposed problem analysis challenges to allow the knowledge narrative to flourish. With the ‘organize knowledge’ and ‘measure’ sections the numbers can be used to explain part of the story. The caregivers can fill in the blanks numbers to support narrative or only tick the blanks to determine the degree of autonomy as shown in Figure 4, which makes the analysis and evaluation possible.

Figure 4. An anonymous patient case. Caregivers can fill in PAI with reference to other scale data. Such as pain measurement—Numerical Rating Scale (NRS) in this case.

The PAI allows visualization to function in place of a written story (Segel, et al., 2010), and it’s not only an information analysis tool but also, above all, a data collection tool first. It implies a combination of evidence-based medicine and narrative medicine. The overall visualization of patient autonomy, including narrative and numbers, forms a network – the final report. These figures show that caregivers are serious about their patients and can be held accountable for their actions and desire to support them. Visualization constructs a certain “wholeness” in the organization of numbers, while the narrative suggests how the legitimacy of the patient autonomy strategy is formed. The PAI focuses on descriptive data and knowledge generation interventions, not knowledge application interventions. It aims to address clinical issues in medical and nonmedical settings and to support patient autonomy in the context of daily care.

3.3 Experiment

We performed an experiment in China. It was an exploratory study with small samples, and qualitative research methods were used. We recruited 6 participants from the palliative
caregivers, aged 32-46 years and were from four medical institutions (Affiliated Hospital of Jiangsu University, Zhenjiang First people’s Hospital, Dongwu Hospital and the third people’s Hospital of Zhenjiang) in Zhenjiang, China.

We first showed a 30-minute video to the participants, explaining the content of the PAI and the filling process. The participants tried out the PAI template for 20 minutes as a training exercise. All the participants were able to finish the exercise in time, showing that they will be able to use it for analysis and decision-making in the real environment (Figure 5). The participants then used the PAI template for one-month for the end-of-life patient care, after which the completed PAI’s were collected. Each participant was asked to submit 4-8 completed PAI’s and invited for a semi-structured interview to discuss their feelings, recommendations, and related experience. The interviews were recorded as qualitative data.

Figure 5. Palliative caregivers work in the real environment.

4. Results

This session describes the qualitative results from the semi-structured interview at the end of the study. Descriptive conversations about the use of PAI template, and reflections that have been recorded, transcribed and marked as discrete categories using content analysis methods (Bryman, 2016). Thirty PAI templates were returned, and twenty-eight were valid. Two templates were invalid due to incompletion because of the patient's death. We performed semi-structured 30-60-minute interviews with 6 participants.

There are three observations from the interview recordings. The first point is the use process of PAI, such as “I was not familiar at first but got quickly to do it, and it was convenient”, “I think the tool is useful”, “I will put it together with the patient medical records for reference”, “It is a bit inaccurate when used for unfamiliar patients, but re-evaluating can make me think more.” The second point is about reflection on their work. For example, “It reminds me of more about nursing, and maybe there are other ways of care I could provide for the patients to choose from.”, “I can understand and comfort him”, “I found that I could
do something more for him instead of walking away after nursing”, “I began to think about when it was more appropriate to provide care for him”. And there are some emotional expressions included “I think I can understand his pain and be prepared to say something to comfort him”, “I think I should get his consent before I help him, and he will feel better”, “I found that by carefully explaining the details of the care, he was more cooperative and thankful, and we were easier for each other”, “I used to keep some questions to myself, but now I can write them down.” The third point was the recognition of the differences. The participants realized that solving problems was not the same as supporting autonomy, “I think I cannot cure him, but I can comfort him”, “This is a difficult problem, I cannot think of a right way, but I listened to the patient for a long time and it seemed to help”.

The participants found the visual design of the PAI template to be intuitive, it helps to reduce the cognitive burden of processing information. It is important in this template to distinguish the problem-solving strategy from the strategy that supporting autonomy. We may not solve all the problems, but we can still support autonomy. It can help the caregivers to describe the problems in detail and increasing empathy.

5. Discussion

The present study found that PAI achieved the goal of supporting patient autonomy in daily care. In any doctor-patient relationship, there is an area of shared knowledge related to daily tasks that are important to support patient autonomy. Health care professionals “shared humanity” (Taylor, 1994) to understand patients is not a secure or stable knowledge. Imagination is inspiring for caregivers, helping them to think more about daily details for deeper their understanding and helping facilitate doctor-patient communication. PAI enhances the explanatory power and makes the intervention of problems or phenomena easier.

The evaluation in the PAI template is an estimation of the patient’s autonomy. It can be repeatedly used for analyzing particular problems. And we should use it with the conventional elderly assessment scale and other autonomy measures such as PAQ, ADL, and PPSv2, etc. The PAI template can be digitized so that it can be integrated into medical systems to facilitate the management of the patient’s knowledge. We could also adapt the PAI for patients with other disabilities such as pediatric patients.

PAI can help balance the beneficence and patient autonomy, which is essential for supporting patient autonomy. Acting beneficence is more complicated than just doing what the patient wants to do. PAI allows the perception of nonverbal cues (Scott, 1997) and pays full attention to the patient. It can suggest the timing and method of serving patients in considering the actual situation. In western countries, people tend to send elderly patients to nursing centers, while in China, patients are usually cared for by family members. The
6. Conclusion

The PAI presented in this paper converts specific problems and event elements into patient autonomy knowledge. The patient real-life narrative becomes the core for analysing their autonomy, which leads to more appropriate and relevant intervention recommendations. According to the qualitative evaluations, the PAI can trigger the imagination and empathy of the caregiver and made them correct details of their work. Insight into the details of the problem helps caregivers understand the knowledge of the patient’s condition and feelings. The PAI template provides a visualization tool for supporting patient autonomy, which is essential for patient-centred palliative medical services. As we know that cultural differences have a great impact on patient care, we will expand the scope of caregivers and explore the effect of PAI on patient autonomy support in different cultural environments in the future.

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Patient Autonomy Indicators: a knowledge visualization tool for patient autonomy support

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**Acknowledgments:** This research is supported by China Scholarship Council and Postgraduate Research & Practice Innovation Program of Jiangsu Province (KYCX19_1845). Thanks to QELCA Jiangsu training group for cooperation, and the participants for their work.
Performativity as a language of sense-making for cultural service design in local museums

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Abstract | The local museum in the future will not only be a space to display the local culture and history, but also strive to serve as a shared place connects communities and their memories. As a promising channel for social cohesion, cultural services in museums create value through triggering social dialogue, open participation, as well as fostering relationship-building and leading users’ sense-making. To create immersive experiences where visitors are both audience and performer, performance theory was introduced in this research to propose the concept of “performative cultural service”. This paper, after a comprehensive review of performance studies, summarizes the performative strategies for sense-making as well as its mechanism of creating impact, to explore the possibility of achieving performativity in cultural service design. After a comparative analysis on the structure of service and performance, this research presents an initial design framework and corresponding design strategies in the context of the local museum.

KEYWORDS | PERFORMATIVE CULTURAL SERVICE, SERVICE DESIGN, LOCAL MUSEUM, SENSE-MAKING, PERFORMATIVITY, CULTURAL SERVICE, SOCIAL COHESION
1. Introduction

Nowadays, museums are shifting from a site of authority to a site of mutuality to respond to challenges posed by postmodernism and post-colonialism, through becoming more democratic and inclusive of contemporary social diversity (Soares et al., 2018; Hooper-Greenhill, 2000). Museums take toward issues of democracy and empowerment through redefining the relationship with their audiences and presenting both side opinions and interpretations (Hooper-Greenhill 2000; Wood 2010). In this context, the local museum is playing a pivotal role in connecting the community around them, not only as a carrier of shared memory, but also as a shared space for the exercise of community power (Ocampo & Lersch 2013).

As the overall social change and, therefore, the imperative in creating new opportunities for community engagement (Wood, 2010), museums social responsibilities are underlined (Sandell, 2003). Museum phenomenon, which must also be understood as a process, phenomenon, flow, or event (Scheiner, 2017), should control the representation of a community and its highest values and truths (Duncan, 1995). Different from the traditional museum, where is never the direct expression of life or reality itself and where the visitor is never in a relationship of direct and unmediated contact with the selected material artifact, Ocampo and Lersch (2013) argued that the community museums imply creativity. Visitors may not accept given solutions, but instead seeks to invent new ways of addressing challenges. Thus, the local museum could serve as a tool for constructing collective subjects to build a joint interpretation of their reality and their history for the generation of awareness.

Cultural services are sense-making activities that allow for open participation, dialogue triggering, and relationship building, which could be a strategic approach in leading and fostering social cohesion and museum inclusion (Shu & Lupo, 2020). The strategic importance that these services, for strengthening the cultural heritage enhancement actions, has long been the focus of the Italian Ministry’s attention, according to guidelines issued in 2009 on the activation and assignment of services to the public in Italian cultural institutes (circular + annex of the General Secretariat No. 49 of March 23, 2009). Cultural services, as foreseen by the art. 115 of the Code, can be managed directly or indirectly. The General Direction for the Promotion of Cultural Heritage also provides for the preparation of tender bids to be used by the peripheral Institutes of the Ministry, when a tender procedure must be issued for the management of services to the public in concession to third parties.

Services have been widely associated with theatre and experience economy, that every business is seen as a stage with scripts, front-end service personnel as actors, and service encounter as a performance (Grove & Fisk, 1992). Pine and Gillmore (1999) argue that staged experiences fulfill a larger subset of customer needs, therefore valued higher by customers than manufactured goods or extracted raw materials. Rifkin (Rifkin 2001) further argues that culture itself is being pulled into the commercial sphere in this experience economy. Many
cultural undertakings are dedicated to the creation and reproduction of certain special psychological experiences (Toffler, 1970), that in almost all developed high-tech societies, the art-based ‘experience industry’ is undergoing significant development for mass entertainment, education, etc.

As an interactive and intuitive language, performance could coordinate all the elements systematically, from the physical environment to human senses, from the narrative to emotional resonance, to achieve an optimized and impactive experience. In this paper, performativity is introduced as a sensitive language to design cultural service experiences in museums. After a comprehensive review of performance and its mechanism in sense-making and impact-creating, this research explores the possibility of achieving performativity in cultural service design. This research presents an initial design framework and corresponding design strategies in the local museum’s context through analyzing cases. All these results have been tested in a design workshop for the Wuxi Museum at Jiangnan University, 2020.

2. The mechanism of performance in sense-making and impact-creating

Sense-making, as defined by Kolko (2010), is “an action-oriented process that people automatically go through in order to integrate experiences into their understanding of the world around them”. It is an active concept, as meaning generates from social interaction and enactive experience that matter to the subject (Jaegher & Paolo, 2007). As Freire (1982) states that, man is a subject because he is a being of relations, capable of reflection, of critical thought, of historical awareness; a being who can choose, create and transform reality; a being cannot renounce without becoming a mere spectator of event, a passive receptor, an object. While performativity could be shared language for participation, presenting and representation, demonstration, and even for prototyping or negotiation.

Figure 1. Cultural performance and its function on social communication imply its potential in enhancing public participation during positive social change.
In *The presentation of self in everyday life*, Goffman (1978) metaphorized everyday life behavior into the performance that people present themselves to leave a desired impression on others. Even people follow culturally specified social scripts, according to Bauman (1984), performance has a quality of reflexivity in the social-psychological sense, as it can provide a situation that enables one to enter the other’s attitude and experience and start to look at itself from other’s perspective. By raising the level of consciousness, cultural performance with reflexivity could facilitate social identity achievement in any social context. Furthermore, social reality can be constructed and communicated among social members through social communication (Phillipson, 1972), from which interactive and resilient social structures are born out (Singer, 1955). Therefore, cultural performance and its social functions imply its potential in enhancing public participation during positive social change (Figure 1).

One of the most basic common characteristics among cultural performance is what was called “the shift in the frame of experience” (Bauman, 1984). We could transform ordinary or extraordinary experiences into meaningful signs and messages, through which groups can stage, display, and explain social experiences (Bakhtin 1968). However, as stated by Colebrook (2002), art may well have meanings or messages, but what makes it art is not content but its affect, the sensible force or style through which it produces content. While affect is a sensation produced in an encounter between body and event, and refers to emotional, often automatic, embodied responses that occur in relation to something else – be it object of observation, recall of a memory or practical activity (Thrift, 2007). Connect with visual art, Bennett (2005) argues that affect produces real-time somatic experience outside the frame of representation, but a diversity of encounters, processes and experiences that extend the relationships over time and in different, frequently unusual spaces. Affect, for Kim and Bianco (2007), is connected both to a capacity for action and to a sense of aliveness, where it is that vitality that prompts a person’s desire to connect and engage (perhaps with others or ideas). Jaegher and Paolo (2007) defined participatory sense-making as:

“the coordination of intentional activity in interaction, whereby individual sense-making processes are affected, and new domains of social sense-making can be generated that were not available to each individual on her own.” (Jaegher & Paolo, 2007, p.497)

In this definition, it is indicated that what undermines the sense-making is not the lack of expressiveness, but the ongoing engagement that has been unhinged. So she introduced the concept “coordination”, like patterned behaviour such as synchronization, mirroring, anticipation, imitation, to connect temporal aspects of interaction and their consequences for joint and individual sense-making. Meanwhile, in *The Structure and Deconstruction of Drama*, Sun (2016) proposed five types of aesthetic psychology that could improve sense-making and impact-creating with audiences’ participation, that is Internal imitation, empathy, aesthetic distance, users’ imagination and creation, Psychological time and space.
Performativity as a language of sense-making for cultural service design in local museums

While critically viewed through the lens of design, sense-making is a motivated, continuous effort to understand connections, in order to anticipate users’ trajectories and act effectively. (Klein et al., 2006). If people behave according to social scripts, we may succeed in codifying the environment (Van Doorn, 2007) or services to support visitors in carrying out these scripts and performing their daily life, or to lead them to a more extraordinary performative experience.

3. Performativity in cultural service

Performativity is a language which functions as a form of social action and has the effect of change (Cavanaugh 2015). The concept was first defined by philosopher of language John L. Austin (1975) as the capacity of speech and communication to act or to consummate an action.

![Figure 2. The theatre and the service represent two different modes of space and dynamics in the experience industry.](image)
Performativity works through cultivating or guide the subject’s sensitive richness, which includes not only the five senses like eyes, but also the so-called spiritual senses, practical senses and the senses of humanity (Sun 2016). If regard cultural services in museum as sense-making activities, performativity is to magnify the sensitivity of visitors to understand through interactive narratives, or to make visitors a witness to the historical process, or to encounter themselves through being one part of the story.

Service and performance are closely linked, and services themselves have been widely described as “performances”. The metaphor that behavior is drama (Grove & Fisk, 1992) engenders a framework for describing, understanding, and communicating about services experiences (e.g. rehearsal, scripts and routines, backstage, costuming, etc.) However, the theater and the service represent two different spatial and dynamic modes in the experience industry (Figure 2). The theater space is divided strictly into two parts, that actors perform on the stage while audiences sit quietly in the auditorium. While, many services' environment is more inclusive, where service providers and users could interact with each other. The difference between theater and service is whether there is a "fourth wall" (Sun 2006), an invisible wall of a set through which the audience sees the play's action. Thus, besides the psychological participation in drama, users in a service could also conduct physical involvement in a realistic environment by reacting, responding, and co-creating to change or influence the experience.

Figure 3. Dialogue in the Dark provides immersive experiences where visitors are guided by blind guides in absolute darkness.
For example, Dialogue in the Dark (Figure 3) is one of the world's most exciting life-changing experiences, where blind guides guide visitors in absolute darkness. Visitors are pushed out of their comfort zone into a world without pictures to experience daily life environments like enjoying a walk in the park, taking a boat cruise, or visiting a café in specially designed darkened rooms. A role reversal is created in these experiences whereby the sighted becomes blind, and the blind gain sight. Thus, Dialogue in the Dark could provoke empathy and advance social inclusion to the blind.

As a language for communication, exploration, and prototyping, performativity could also enhance collective sensitivity by valuing each participant's creativity and imagination. For example, 100 in 1 day is a creative activity initiated in major cities worldwide, encouraging people to spend 100 days thinking about the social problems around them, and perform their solutions together on the same day, to trigger social dialogue. Figure 4 shows the practices in Hongkong, 2016. A residents' innovative actions against the prohibition of bicycles on roads have triggered the public's reflection on the question of "who should be the user of roads."

![Figure 4. A residents' innovative actions against the prohibition of bicycles on roads in Hongkong, 2016 have triggered the public's reflection on the question of "who should be the user of roads."](image)

In a series of exhibitions Sensitive Environment designed by Studio Azzurro, different languages and digital narratives are integrated to involve the viewer in a story of images and sensations. Stories will be activated and "live" again when visitors get in touch with the characters on the screen, making himself the bearer of that story and its message. In this case, the viewers' interaction is an indispensable component for this artwork, and the viewer will activate his or her own as an echo through the encounter. Visitors' interactions are combined with digital content to achieve multiple narratives, associations, and meanings.
4. Design strategies for performative cultural service for local museum

Performative cultural service doesn’t change social reality directly but isolates a space (situated context) for visitors to encounter, involve, explore, negotiate, collaborate, or even try an alternative (engaging in a process). After that, visitors back to the reality may gain a new perspective or inspirations to reflect society reality (echo) and be proactive for potential social change. The performative experience is co-created, where designers create a context to support visitors’ own sense-making and provide different storylines or possibilities for visitors to explore, while visitors interact with narrative to create their personal experience and story. Therefore, we could divide performative cultural service experience into three stages: Context, Process and Echo (Figure 5).

![Diagram of Performative Cultural Service Experience]

Figure 5. Performative cultural service experience could be divided into three stages: Context, Process and Echo.

According to the case study and literature review, this paper proposed a theoretical framework for enhancing the performativity of cultural service (Figure 6). After analysis relevant cases with these three stages, more detailed factors and potential strategies for
design intervention are identified in each stage. After that, the framework and strategies have been reframed into a set of toolkit for relevant design practices, which has been tested in a two-day design workshop for the Wuxi Museum in 2020 at Jiangnan University, China.

Figure 6. An initial meta-design framework indicating different stages and factors of performative cultural service experience.

- **Context**: Context serves as the base of the performative interpretation, including topic, role and perspective presetting, and Mise-en-scène. Local museums could select shared concerned issues as the topic and reconstruct them into situated context. In the stage Context, visitors' role and perspective will also be preset, which could be the basis of narratives. With the same scene but with different roles or perspectives highlighted, a drama would achieve different effects, focuses, and interpretations. For example, visitors consciously take the role of the blind before the experience of Dialogue in the Dark to obtain others' perspectives. That is a perspective conversion technique "from the third to the first perspective." Meanwhile, Mise-en-scène like settings, time and space, and atmosphere could lead users into the scene and prepare for an immersive experience. In this stage, the designer is a context-provider who creates a context that supports story-making. A situated context is essential for leaving a memorable experience in the minds of those who visit it.

- **Process**: The storyline slowly unfolds in the second stage, leading visitors to reveal the immersive narrative with guidance and triggers gradually. Technology could empower the visitors in narrative, activate the visitors as one part of the
history or a witness of a process, lead or provoke visitor’s exploratory behavior in revealing the storyline with hints and instructions, as well as personalize the story with user’s interaction. In this stage, the design focus is to reconcile "narrative" and "interactive", that is, the contradiction between the linearity of reconciling narrative and the nonlinearity of participants. Narrative is the product of top-down planning by designers, and interactivity requires users' input and contribution from the bottom up. To achieve well-designed interactive narratives, a balance is required between the freedom to interact when we perform and the structure that is imposed on us by our environment to create natural and memorable experiences. Thus, an open framework is indispensable for inviting visitors' own interpretation and imagination. As sense is co-produced by designers and visitors in this stage, designers could never control the whole process, but facilitate visitors' participation and optimize the balance through iteration.

- Echo: Echo refers to visitors’ internal participation before fully detached from the experience, as well as their following active behaviors that respond these experience. The first two layers can be designed in advance, while the relation, reflection, emotion or other impact in stage layer is improvise, which cannot be designed but facilitated. As a successful performance is co-created by designer and visitor, the emotion and the “performance” of audience is spontaneous overflow, that designers cannot design or control, but facilitate the process and let it go.

5. Conclusion

This interdisciplinary research explores the complexity of service design by investigating performativity as a language of service encounter and addressing social issues like social cohesion in the context of local museums. Through interpreting cultural service experience as a sense-making activity, this paper is committed to breaking pre-established methods for service design like user journey and touchpoints and proposing a theoretical framework for designing performative cultural service and the directions to develop relevant design strategies. All these results have been tested during a design workshop in Jiangnan University, Wuxi, China. This paper presents a reflection of the role and the future of local museums in the digital age.

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**Acknowledgements:** I would like to express my deep and sincere gratitude to my supervisor Professor Eleonora for her continuous support and invaluable guidance throughout this research and my PhD study.
Solid perspectives and optical corrections of spaces in graphic & architectural design

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Abstract | Since the coding of perspective, there are many design solutions where "solid perspectives" and "optical corrections" are used to correct visual perception of spaces. Some applications are in urban areas, such as Piazza del Campidoglio by Michelangelo (1538) or Piazza San Pietro by Bernini (1629-57), others are in courtyards or small outdoor spaces, such as the Perspective Gallery of Palazzo Spada by Borromini (1652-53), and in theatrical scenic spaces, like the Olimpic Theatre in Vicenza by Palladio (1580-85). Today "solid perspectives" and "optical corrections" of spaces are used in "graphic & architectural design", where "Projection Design", "Exhibit Design" and "Graphic Design" also converge. This paper makes us reflect on the possible future developments of "solidperspectives" and "optical corrections" of spaces, and it assesses whether they will be limited to the field of ephemeral design or will also be part of more lasting solutions over time.

KEYWORDS | GRAPHIC DESIGN, ARCHITECTURAL DESIGN, ANAMORPHOSIS, PERSPECTIVE
1. Introduction

“Solid perspectives” and "optical corrections" of spaces are applied to architecture (Clemente, de Rubertis, 2001), sculpture and painting, and can be distinguished in two different groups: "solid perspectives" are obtained using the principle of vanishing line to correct urban spaces or architectural façade profiles, and they "speed up" or "slow down" effects of natural perspective; "optical corrections" refer to compensation of visual errors, through use of corrective methods closely connected with geometric optics and with physiology of human ocular system, including among these "anamorphosis".

"Accelerated perspective" is used to configure a space where, with respect to the observer's position, sides of the elements that make up the space are convergent with respect to the center of perspective framework. The space appears less deep than it is in reality. Anamorphosis is a distorted projection or perspective, requiring the viewer to occupy a specific vantage point: the space or the image are not recognizable if the observer is not standing in the right vantage point.

These methods, especially in urban field, have been used, since ancient times, to modify perception of spatial extensions in urban spaces. Purpose was, materialized in baroque urban concepts, to exploit the artifice to emphasize some scenic and expressive effects.

In fact, were studied spaces composition and their representation in function of the observer, especially in cases where figurative spatial needs were considered of greater importance than functional ones.

Ways and methods with which illusory perspective and optical corrections can transform spaces, flanked by new technological solutions, are nowadays often adopted for temporary interventions or installations. They have the same purpose as in the past: not rational, but perceptive recomposition of the urban space induces, in the observer's mood, a feeling of astonishment. There are many design variations, and fields of application start from advertising, to get to media one, to public events field or they have purely expressive purposes.

2. Use of optical illusions in the past

Use of "solid perspectives" and "optical corrections" has already been expertly used by the Greeks.

Restricting historical field of investigation starting from the 15th century, it is interesting to observe how they are used at different scales: in squares and urban developments, in architectural elements, in decorations and in facade buildings feature.

Among urban developments, some interventions are relevant such as Piazza Pio II in Pienza, Piazza del Campidoglio and Piazza San Pietro in Rome.
Piazza Pio II is part of an urban project planned in 1459 and entrusted to Bernardo Rossellino, Leon Battista Alberti’s disciple at the behest of Pope Pius II. The small square, seen from city hall portico, is in "anti-perspective". Square’s shape is trapezoidal, whose sides diverge towards the facade of the Duomo. In this way it is perceptually regularized square’s shape, which is perceived as a wide and short rectangle and not as a trapeze. On the other hand, when the observer leaves the Duomo, it appears deeper with an "accelerated perspective". Michelangelo Buonarroti used the same trick for Piazza del Campidoglio in Rome in 1538. The square is trapezoidal with larger base located on Palazzo Senatorio. This generates a "slowed perspective", compared to the point of view from the staircase that leads to the square, and Palazzo Senatorio appears closer. Such geometry transforms into a regular space the 80° angle existing between Palazzo Senatorio and Palazzo dei Conservatori, whose position is required by existing hill’s shape. In San Pietro’s square Bernini (1629-1657) had to solve a visual problem: the Basilica was disproportionate, and the dome had lost its ancient central position. The construction of the new colonnade and the square had to necessarily move away the point of view, to allow a perception of the dome in its entirety (which is no longer visible today due to the construction of the Maderno’s facade). Bernini uses a "slowed perspective", through the creation of a trapezoidal space perceived as rectangular. Solutions adopted by Michelangelo for Piazza del Campidoglio and by Bernini for Piazza San Pietro were effective: this is demonstrated by printed lithographic images and by landscape painters, who represent "trapezoidal" spaces of the two squares as "rectangular", and they do not represent deformations that are present in reality. Although it is not a real urban space, it must be mentioned the Perspective Gallery of Palazzo Spada by Borromini, who in 1635 created an "accelerated perspective". Thanks to converging sides of space and converging floors and vault’s plan, he is able to compress an illusory space of about 35 m in a space of 8.82 m long. Arches and columns that surround the Gallery, at the entrance are 4.10 meters high and the vaults are 2.95 meters wide. At the end of the tunnel they reach a height of 2.45 meters high and a width of 1 meter. Illusion is possible because the plans converge in a single vanishing point; thus, while the ceiling descends from top to bottom, mosaic floor rises. Among buildings decorations there are both "accelerated perspective" in architectural elements or parts realization (such as portals, windows or fake windows), and "anamorphosis", which often replaces elements that are not made due to lack of space or due to financial shortcomings. Some examples are Santo Spirito’s portal by Bernini in 1664, Palazzo Barberini’s windows (1625-1633) and Palazzo Doria Pamphili’s windows (1644-1650) in Piazza Navona.
If solid perspective is often used in urban contexts, anamorphosis is an expedient often used indoors (a significant example of "anamorphosis" is visible in the fake dome of Sant'Ignazio of Loyola's church, built by Andrea Pozzo in 1685). In urban spaces, its use is limited to architectural elements on facades of buildings, often in version of "solid anamorphosis" (Figure 1).

Figure 1. Example of solid anamorphosis in a portal located in Pézenas, France. The building placed along a narrow and uphill road; it is perceived in its entirety only from a main observation point. Thanks to anamorphic deformation of edges, the portal can be perceived in the "correct" proportions. Images from web (Pinterest).

3. Solid Perspective and optical corrections in “graphic & architectural design”

Urban scene today is made up of existing buildings, and to improve architectural space’s quality, whether in urban regeneration or in artistic performances, graphic and exhibit design are used to improve and change spaces perception. Built space is transformed into a
set-up space and "illusory" effect of exhibits, based on same principles theorized in Renaissance and Baroque period, is also evolving thanks to new possibilities offered by technological evolution. In this way are configured so-called “Augmented Space” or “Spatial Augmented Reality” (Maniello, 2018), which define a new type of public space: it arises from overlap between computer data and real space, visible in overlapping layers (Manovich, 2006). One of preconditions for the configuration of these new spaces is the continuous dialogue between real and virtual space through the development of contents.

The research investigates how it is possible to use "solid perspectives" and "optical corrections" and in which fields of application, regard from those of the past, and investigates what possible future developments will be.

In "projection design" field, "video mapping" applications, integrated with lighting systems, give rise to visual communication actions. Content information can relate to objects where video projections are made (Cultural Heritage). These forms of communication are also called "interactive light".

Main feature of "video mapping" is the close relationship between the support on which to perform the projection and information content: we often operate on buildings facades helping to define scenographic and optical distortion effects of the facade itself, thus engaging a mutual relationship between observer, space and artistic creation. As it was in the past, this solution allows to concentrate the attention of the observer on the global effect of perception.

Interesting examples are present in Rome. In via dei Fori Imperiali there are seasonal projection mapping installations which tell the story of the August’s and Caesar’s Forum with different ways of involvement.

In video projection of August’s Forum, the viewer, while he is sitting on a tribune located on the edge of the archaeological excavation, attend the story of Forum evolution and the history of Roman Empire. In the Forum of Caesar, on the other hand, the viewer moves among archaeological finds and, as he passes, video projectors, that reconstruct the history of the place, are activated. Tour ends in front of the Curia, where political decisions of the
Roman Empire were made, and "projection mapping" virtually breaks through the wall placed in front of the visitor, telling the transformations of the building over time. Video projections overlap archaeological finds and reconstruct place’s history making space’s articulation and space’s glory understandable to the visitor, as they were 2000 years ago.

"Projection mapping" is also used in limited periods on some facades of historic center of Rome, through artistic installations active at night, such as RoMap in September 2015 and 2016, or "Videocittà" in October 2018 and 2019. Facades are considered palettes, even if correctly mapped, where video artists release their inspiration. It is possible to add three-dimensional effect to video mapping, through stereoscopic images in the colors dominating the vision with anaglyph glasses (Figure 2).

![Figure 2. Nerdworking, Solid light Festival, 2018, Basilica of Sant'Agostino in Campo Marzio, Piazza di S. Agostino, Rome. Video mapping with stereoscopic images viewable through the use of anaglyph glasses. Image by Adriana Caldarone.](image)

Space becomes scene of a multimedia "dramaturgy" where projections are main element.

In addition to expressive content, informations content of videos are often also linked to the support: both visual and sound storytelling turns to the history and function of the building, in a unitary project of lights, audio, and architecture.

"Projection design" linked to the "projection mapping" therefore presents some
fundamental, conceptual and technical elements: conceptual aspects are linked to "storytelling" and "storyboard"; technical aspects are related to survey and 3D rendering restitution in order to know the object to be "mapped", type of video projector and its position used to "map" the object. Storytelling is a communication technique that consists of telling a story to attract the attention of a specific audience. A message is conveyed to that audience, to stimulate a certain desire in the spectators and to persuade them to perform a specific action. In few words: it's about persuading by telling a story (Scuratti, n.d.). Storytelling elements are (Nordio, n.d.):

- restrain emotions related to the story you want to tell;
- stimulate the senses to tell the story;
- put "why" at the center of history;
- create in the visitor's mind a new world or a new conception of the object being told;
- tie history to identity values;
- does not aim to convince but to involve;
- activate lateral thinking.

Storyboard provides the structure of projection mapping. It is a timeline, where individual scenes are sequenced, while providing their duration. Elements to be defined are:

- subjects in the frame, and their sequence;
- information to be transmitted (linked with storytelling);
- time between one storyboard scene and the next;
- position of the frame and if it is static or dynamic.

From a technical point of view, geometrical study and architectural survey are two essential issues in "projection mapping" design on an architectural structure. Design consists of several stages of construction and includes (Empler, 2018):

- survey of the support with direct or indirect method, where to carry out video projection. Choice of survey methodology depends on a number of factors (complexity of object to be "mapped", in terms of dimensions and details on facade). For simple objects can be used a direct method survey (it is carried out with use of traditional tools) and a photographic survey of the surface on which to project. More complex objects, such as church facade or archaeological objects, need an instrumental survey method through a 3D laser scan or a photo-modeling process. Aim of survey is to generate and control a virtual 3D model;
- generation of a measurable 3D mesh model, virtual replica that is overlap (even if scaled) to real object at the base of survey. On this 3D model it is necessary to carry out subsequent processing and transformation operations to create the performance;
study and realization of geometric transformations, whose purpose is to make virtual 3D architectural model coincide with the real one. In this case, some principles of descriptive geometry are applied such as homotety, homography and anamorphism.

Homotety is a geometric transformation that allows a space expansion or contraction, while maintaining shape, angles and does not change relationship between them. Having as a point of reference homotety, we continue with a homographic transformation of the object of interest, generating a second space whose points exactly correspond to those belonging to the architecture taken as a reference point. Once the animation is designed on the detected space, an adaptation of the image projected on the architectural surface takes place to correct any aberrations, the so-called "wrapping". Generated illusion consists of an image reproduced in a distorted way on the surface so that it can be perceived correctly by the observer from a main point, through the rules of anamorphism. Thanks to this methodology, architecture becomes "liquid", mobile, it adheres as if it were a film, it deforms and detaches itself from real surface.

"Projection mapping" is a new frontier of art, technology and visual design applied to cultural heritage. It is an advanced projection technique, which transforms any type of surface into a dynamic display, transforming architecture into a new communication media. Animations, videos and light effects can communicate an advertising message, information or history of an object or environment. What you can achieve is an explosion of images, capable of totally involving the viewer. Each event is able to turn into a real mass illusion.

"Exhibit design" is another fields where we create three-dimensional installations, and where two types of solutions prevail: optical illusion through anamorphism, in a sort of "solid anamorphosis"; installations where we use "accelerated" or "slowed" perspectives, as in theatrical scenes ("solid perspective").

In the past, anamorphosis was often used in a symbolic key to spread a subliminal or hidden message (i.e., painting "The ambassadors" by Hans Holbein, where a skull in anamorphosis is visible, and communicates the inevitability of death); in the same way nowadays it is used for diffusion of a message, especially in advertising or for promotion of events.

In fact, emotion of optical illusions generates sharing and virality among users (especially on social networks), who, unknowingly, become a means and instrument of promotion and marketing of the event, an object or the artist. Examples are two exhibitions held in Paris, such as "Qui Croire?" by François Abelanet in 2011, installation of a green area in front of
Solid perspectives and optical corrections of spaces in graphic & architectural design

Hotel de Ville in Paris (figures 3), or a 2014 installation at the City of Science and Industry of la Villette.

Figure 3. "Ephemeral garden", July 2011, Hotel de ville de Paris square. apparently it is a garden whose shape you cannot recognize. If you look at it from the main point, the garden is a globe with meridians and parallels. Images from web (artistasaturnino).

In Paris also, the Louvre Pyramid was used for two different artistic installations, one in 2016, the other in March 2019, on the occasion of the 30th anniversary celebration of the Pyramid of Pei. In the first case, a street artist has glued on one of the pyramid’s facade, strips of paper with the pattern of the museum behind it. The overlap of the real and anamorphic picture, from a main point, cause, in an optical illusion, the disappearance of the pyramid (figure 4).

In the second installation, the street artist used strips of paper around the pyramid with a group of volunteers. The effect is an anamorphosis, visible from the top, that (in an illusionistic way) sinks the pyramid below the walking level (figure 5).
In “Graphic Design” field, creations are mainly two-dimensional, with realizations of solid perspectives and/or anamorphosis and/or use of ambiguous figures, as in the realization of Marseille in 2013, on the Stock Exchange and Chamber of Commerce by Pierre Delavie, or anamorphoses in urban landscape created by Felice Varini or by the Madrid-based collective BoaMistura (in Saint Paul’s favelas in Brazil). In Saint Paul favelas it is a real urban redevelopment thanks to the use of graphics and anamorphosis: walls were painted, with collaboration of inhabitants of neighborhoods, with brightly color tones and large letters compose words that recall positive sensations (figure. 6). The aim is to reinvigorate the
consciences of the most disadvantaged neighborhoods in São Paulo. Anamorphosis becomes both the means of transmission and the container of the message.

Figure 6. Favelas, São Paulo, Brasil. Letters are painted through anamorphosis by the artists and locals. Images from web (disup).

4. Conclusion

Solid perspective and optical illusions are still alive instruments thanks to modern interpretations and application fields. They are not abstract conceptions of descriptive geometry, but have a large application fields in planning and design of collective spaces. If in the past architects, artists and writers collaborated each other to study and create illusory spaces, today many more skills are integrated: designers, architects, sound designers, collectives of artists, video makers, computer scientists, street artists, performers and so on. People is often involved through active performances. Design of public spaces develop into collective moments of construction, fruition, and sharing of space. An experiment of global connection which, through perspective tools, comes to transformation, though ephemeral, of built heritage.

References


**Acknowledgments:**

The paper is the joint result of the work of the 3 authors. Particularly:

Part 1 and 4 by Tommaso Empler
Part 2 by Alexandra Fusinetti
Part 3 by Adriana Caldarone
Spatial construction for ideational meaning: An analysis of interior design students’ multimodal projects

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Abstract | Multimodality is an inter-disciplinary approach that considers communication to be more than just language. Multimodal studies focus mostly on the analysis of two-dimensional printed, digital, and screen production. This paper explores a multimodal pedagogic approach used to teach students to create interior design projects as three-dimensional ensembles, which we reflect upon to contribute to the framework of multimodality. This qualitative research begins with a review of multimodal discourse establishing language as a system of choice, and a relationship between spatial design and language. A case-study of students’ multimodal ensembles reveals how the design choices of mode, semiotic resource, modal affordance and inter-semiosis led to students producing rich and inclusive meaning, supporting a reproductive health mandate. An interpretive semiotic framework based on Hallidayan principles of Systemic-functional linguistics is developed for spatial meaning-making analysis for future projects. The findings offer a narrative metalanguage for spatial meaning-making, contributing to broader interior design discourse.

KEYWORDS | MULTIMODALITY, INTERIOR DESIGN, SYSTEMIC-FUNCTIONAL LINGUISTICS, HIV/AIDS AWARENESS, GUERRILLA MARKETING
1. Introduction

Multimodality infers that communication and representation is greater than just language, and relies on a multiplicity of modes (visual, spoken, gestural, written, three-dimensional, etc.) that people use to make meaning and to communicate with each other. Multimodal Discourse Analysis (MDA) considers how multimodal ‘texts’ make use of a variety of modes of communication to make meaning within the sociocultural context in which they occur. The aim of MDA is therefore to describe the socially situated semiotic resources that people draw upon for communication (Paltridge, 2012). The four key concepts that provide the basis for all MDA are: Mode, a medium of communication that is culturally shaped over time through its regular use in society; Semiotic resource, a means of meaning-making that display regularity in the way it is used; Modal affordance, what it is possible to express and represent easily with a mode, and Inter-semiosis, how modes are arranged (or designed) in a particular context (Bezemer, 2012). Understanding these concepts and their interrelationship is critical in determining how communication functions in any particular time and place, how it is produced and by whom it is produced.

The rapidly developing interest in multimodality studies reflects a shift from discipline specific to thematic structures with inter-disciplinary collaboration becoming increasingly important to address current social challenges, the democratization of knowledge, and to accommodate for emerging new forms of digital communication. Within Multimodality studies there is a stronger correlation between theory and practice with an increased focus on developing solutions to real-world problems across a range of domains, revealing a change of relationship between academia and the wider society (O’Halloran & Smith, 2011).

Currently, the majority of literature focuses on two dimensional forms of multimodal discourse with far less relating to the analysis of three-dimensional and spatial modes of communication (Forceville, 2010; O’Halloran, 2008; Stenglin, 2004), to which this study wishes to contribute. The aim of the paper is to present students’ spatial design proposals that can be seen as rich meaning-making ensembles or ‘texts’, reflecting a set of choices made by the designers through the selection and arrangement of multiple two and three-dimensional semiotic modes, (e.g. text, sounds, colours, images, forms and texture, etc.), within a specific social context. This is done to demonstrate that three-dimensional spatial design (as an interior design practise) can contribute towards multimodality theory. We developed a ‘matrix of choice’ analytical framework based on the Hallidayan principles of functional linguistics. This framework is used to analyse how meaning is made in these spatial modes of communication, designed to raise awareness about HIV, and related social problems.

In this paper, we firstly present an overview of multimodal literature to theoretically position the study. We then present a background to a multimodal pedagogical approach used for the student project, purpose and objectives. Thereafter, we describe the research design and methods developed for analysing the described data, followed by an analysis of selected student’s proposals using an interpretive Systemic-functional linguistic (SFL) framework to
describe how the meaning is made in the student’s multimodal ensembles. We conclude with a discussion on the implication for multimodality discourse and its impact on Interior Design studies.

2. Multimodality as the theoretical positioning of the study

Multimodality, Multimodal Semiotics and Multimodal Discourse Analysis (MDA) are terms used to describe the interdisciplinary approach to the study of language that extends the concept of language beyond the written and spoken word, to include images, symbols, gesture, action, music and sound (Cope & Kalantzis, 2009; Jacobs, 2007; New London Group, 1996; O’Halloran, 2008). These terms are used to describe the study of any form of communication (media, mode, semiotic resources) other than the perceived dominant forms of written and spoken language (Bezemer, 2012). Multimodality theory draws on a social semiotic approach to language, to deliberate how multiple modes of communication in the form of ‘texts’ are used to make meaning (Bazalgette & Buckingham, 2013; Jewitt, et al., 2016; Kress, 2011). Kress (2011, p.36) explains

“...texts, of whatever kind, are the result of the semiotic work of design, and of processes of composition and production. They result in ensembles composed of different modes, resting on the agentive semiotic work of the maker of such texts”

Whom the author is and how the author uses multimodal forms of communication is a key concern of MDA. It is stated that:

“...people use semiotic resources both to produce communicative artefacts and events and to interpret them ... in the context of specific social situations and practices” (Van Leeuwen in O’Halloran, n.d., p.2).

According to Jewitt (2009) multimodality theory is formulated upon the following four assumptions:

- Representation and communication always draws on a variety of modes, all of which equally contribute towards meaning-making;
- Each mode of communication realizes different meanings;
- People orchestrate meaning through their selection and configuration of modes;
- Semiotic resources are shaped and refined over time by the social conventions specific to the genre, context and time.

Michael O’Toole, who pioneered the development of analytical semiotic models for application in MDA, based his analytical framework on Halliday’s theory of SFL, notably paradigmatic dimension and metafunctional dimension. The principle of paradigmatic dimension implies that the user has choice for meaning-making and selects from available options within the environment (Halliday, 2003). Halliday’s three metafunctions of language are described as:
• *Ideational* or *experiential* function, relating to the need for people to make sense about the world around them and within;
• *Interpersonal* function for creating and maintaining relationships;
• *Textual* or *compositional* function, which acts on how the other two modes are arranged to create a coherent flow of discourse.

3. **Background to the student project, the brief objectives and modal influences**

This annual student project forms part of a larger Curriculum-integration strategy developed by the Higher Education HIV/AIDS Programme (HEAIDS) in South Africa. The HEAIDS was established as a “…dedicated national facility to develop and support the HIV mitigation programmes at South Africa’s public Higher Educational Institutions” (HEAIDS, 2012, p.2).

This sexual reproductive health initiative is driven by government policy in response to the alarmingly high rate of HIV/AIDS infections in the region (UNAIDS 2019) and was implemented because “the age group most affected by the pandemic regrettably feed into the workplace and institutions of higher education” (Gobind & Ukpera, 2014, p.355; Shefer, et al., 2012). The University’s Interior Design department’s students regularly participate in this programme, in collaboration with the Institutional Office for HIV & AIDS (IOHA) whose officers are responsible for conducting workshops and educating students about reproductive health and wellness.

The brief outlined the project’s objectives of designing a multimodal spatial intervention that could promote HIV/AIDS awareness, lead the viewer to the various IOHA offices and services, and disseminate information. The specific design requirements required the students to: identify and analyse a suitable location on campus, create an original slogan/message for the appropriate target market (staff and students) using their own popular voices.

The students were encouraged to incorporate into their projects¹ visual and spatial modes of communication used in related, art, design and marketing disciplines namely: exhibition-stand design, installation art, and guerrilla marketing (GM). Some of the similarities between these modes of meaning-making is that they use multi-modalities to stun, attract and engage the viewer, make use of popular and positive catchy message and encourage consumers to disperse the message. They require high levels of creativity (Hutter &

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¹ All work produced by students as part of normal coursework remains the property of the university and therefore permission to use it for academic or marketing purposes is not required.
Hoffman, 2014), imagination and innovation in order to effectively engage consumers (Nufer, 2013) or viewers at a personal and memorable level; make use of the environment and its physical surfaces to convey messages (Gambetti, 2010); are usually temporary installations, and are defined by their ambient conditions.

This strategy adopted for the project brief was intended to produce an outcome that was meant to produce more than just a prototype of a multimodal awareness campaign or to tell a story. The intention here was to get deeper insight into the students’ understanding of the pandemic and related social ramifications, allowing them to express themselves, and communicate in ways that might otherwise be inhibited when using more traditional linguistic methods.

The project was conducted in collaboration with IOHA who first workshopped HIV/AIDS-related themes with students and consulted with students during the development of their proposals. For final submission students submitted both two-dimensional documentation, and a three-dimensional scale model of the proposed intervention shown in relation to the existing building structure.

4. The research design and methods

This qualitative research design is ontologically interpretive and epistemologically subjective, falling within the constructivist paradigm. The authors present their research bias being facilitators of the student project over several years.

Firstly an initial review of literature is conducted to situate the study within the field of multimodality, and to establish the relationship between spatial design and language. We explore the Hallidayan principles of SFL. These include a) paradigmatic dimension, (meaning is choice), elaborated upon in the literature review, and b) metafunctional dimension, (ideational, interpersonal and textual/compositional). Halliday’s SFL, is an approach to linguistics that considers language as a social semiotic system (Paltridge, 2012). A case study approach is taken to analyse a selection of student’s proposals according to an analytical framework developed on Halliday’s metafunctions of language.

4.1 Data and delimitations

The data analysed includes the scale models, plans and sections of two selected design proposals resulting from the student project (explained to be based on the reproductive health programme). These samples were selected as they successfully illustrated the learning outcomes of the project, and used multiple visual modes of communication. The primary data comprises of photographs of students’ three-dimensional scale models (taken by the authors) that represent the existing location and its structural constraints, as well as their proposed installation.
The data included an architectural type floor plan and cross-section, indicating circulation, dimensions and structural components. The data is referred to as proposal 1 and proposal 2. We acknowledge that two-dimensional photos of three-dimensional models are only representations of a proposed spatial intervention. The photographs are taken from a fixed view point, in some cases students digitally superimposed an image of the model into an image of the existing building to create the illusion of a full-size installation.

5. Analysis of student projects

On completion of numerous iterations of this project over several years it became apparent that there was a need to develop a more substantial analytical framework, and language that could be used to analyse and describe how the design choices made by the students regarding the selection and arrangement of visual and spatial modes was used to make meaning. The development of a SFL framework could provide a useful aid for future teaching and learning, development of briefs and associated learning outcomes, and evaluation of projects in the interior design studio.

For this we borrowed heavily from O’Toole’s analytical semiotic models for application in MDA. O’Toole used the principles of SFL to develop an empirical method for the analysis of various modes of visual meaning-making bringing a “fresh and theoretically powerful social semiotic perspective of systemic functional theory” (O’Halloran & Smith, 2011, p. 5) that could be applied across a wide range of disciplines. Acknowledging that each “domain has its own expertise, and registerial conventions of theory and practice for research and discoursing” (O’Halloran & Smith, 2011, p.5), this approach may be more accessible, and has universal application. O’Toole initially applied this analytical tool to painting and later adapted it for analysing other art forms such as, architecture and sculpture (2011). A further example of its application and development can be seen in O’Halloran (2008) for digitally produced graphics and video screen productions, and Riley (2012) for Fine Art drawings. Formulated on these principles we attempt to develop an analytical framework that can be used to analyse how meaning is made in the students’ multimodal proposals. This analytical tool allows one to itemize a multimodal ensemble into smaller components and then describe each according to Halliday’s three metafunctions of language, ideational, interpersonal and compositional.

Our developmental framework and two examples of its application are presented below.
Table 1. This table presents a matrix of choice analytical framework where the Ideational function relates to the designer’s understanding of what HIV prevention is in this social context. The Interpersonal function is indicative of the designer’s stance and attitude towards HIV prevention and the mood with which it is conveyed to the viewer. The Compositional (or textual) function deals with the arrangement of available visual and spatial devises, or inter-semiosis, by which means the other two functions are realised.

<table>
<thead>
<tr>
<th>Design Component</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ideational</strong></td>
<td></td>
</tr>
<tr>
<td>Statistical</td>
<td>Intriguing</td>
</tr>
<tr>
<td>Factual</td>
<td>Intimidating</td>
</tr>
<tr>
<td>Thematic</td>
<td>Imaginative</td>
</tr>
<tr>
<td>General / Targeted</td>
<td>Speculative</td>
</tr>
<tr>
<td>Sexual</td>
<td>Reflective</td>
</tr>
<tr>
<td>Medical</td>
<td>Commanding</td>
</tr>
<tr>
<td>Social</td>
<td>Questioning</td>
</tr>
<tr>
<td>Cultural</td>
<td>Warning</td>
</tr>
<tr>
<td><strong>Textual message</strong></td>
<td>Provoking</td>
</tr>
<tr>
<td><strong>Interpersonal</strong></td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Imaginative</td>
</tr>
<tr>
<td>Contextual</td>
<td>Reflective</td>
</tr>
<tr>
<td>Integration</td>
<td>Commanding</td>
</tr>
<tr>
<td>Placement</td>
<td>Questioning</td>
</tr>
<tr>
<td><strong>Spatial structure</strong></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Warning</td>
</tr>
<tr>
<td>Formal - ordered</td>
<td>Provoking</td>
</tr>
<tr>
<td>Casual - creative</td>
<td>Playful</td>
</tr>
<tr>
<td><strong>Compositional</strong></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>Imaginative</td>
</tr>
<tr>
<td>Colour</td>
<td>Reflective</td>
</tr>
<tr>
<td>Placement</td>
<td>Commanding</td>
</tr>
<tr>
<td>Position</td>
<td>Questioning</td>
</tr>
<tr>
<td>Repetition</td>
<td>Warning</td>
</tr>
<tr>
<td>Typography</td>
<td>Provoking</td>
</tr>
<tr>
<td>Emphasis</td>
<td>Playful</td>
</tr>
<tr>
<td>Word composition</td>
<td></td>
</tr>
<tr>
<td>Rhyming</td>
<td></td>
</tr>
<tr>
<td>Tone</td>
<td></td>
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<tr>
<td><strong>Additional media</strong></td>
<td></td>
</tr>
<tr>
<td>Realistic / Abstract</td>
<td>Symbolic</td>
</tr>
<tr>
<td>Figurative</td>
<td>Conceptual</td>
</tr>
<tr>
<td>Metaphoric</td>
<td>Suggestive</td>
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<tr>
<td>Numeric</td>
<td>Descriptive</td>
</tr>
<tr>
<td>Illustrative</td>
<td>Narrative</td>
</tr>
<tr>
<td><strong>Intended user engagement</strong></td>
<td></td>
</tr>
<tr>
<td>Participation or observation</td>
<td>Hyperbolic</td>
</tr>
<tr>
<td>Imposed / Voluntary</td>
<td></td>
</tr>
<tr>
<td>General / Targeted</td>
<td></td>
</tr>
<tr>
<td>Level of complexity</td>
<td>Hyperbolic</td>
</tr>
<tr>
<td>Cooperative</td>
<td></td>
</tr>
<tr>
<td>Competitive</td>
<td></td>
</tr>
<tr>
<td>Physical / Emotional / Cognitive</td>
<td></td>
</tr>
<tr>
<td>Supplementary / Essential</td>
<td></td>
</tr>
<tr>
<td>Diffusion</td>
<td></td>
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<tr>
<td>Physical / Virtual</td>
<td></td>
</tr>
<tr>
<td>Analogue / Digital</td>
<td></td>
</tr>
<tr>
<td>Degree of interaction</td>
<td></td>
</tr>
<tr>
<td>Privacy</td>
<td></td>
</tr>
<tr>
<td>Proximity</td>
<td></td>
</tr>
</tbody>
</table>

To create a sequential approach for the analysis of the multimodal design proposals it became necessary to sub-divide the ensembles into smaller design components as listed in the first column in Table 1. It is important to understand that the matrix of choice analytical framework is systemic in nature. This means that the ranges of available choices do not only allow meanings to be negotiated within a single function or restricted to only one component of the multimodal ensemble, but “...allow for the negotiation of meanings
through all functions at all levels”, (Riley, 2012, p.5). As in any form of multimodal ‘text’, all these functions operate simultaneously.

Many student’s conceptual starting point is a slogan, as appears in this case. The target is general and the message is commanding in its appeal to eliminate HIV. The text is integrated into the structure in two components. ‘Stomp out’ appears as flat cut-out letters attached to the underside of the sole accentuating the action it describes. All the text is emphasised through colour, and placement, the additional enlarged size and three-dimensionality of the letters HIV, make it the focal point, and the topic obvious. The use of irregular and distorted fonts is intended to be reminiscent of a horror movie poster. The implied meaning is that HIV is something evil and needs to be eliminated or ‘squashed like a bug’ under the sole of one’s shoe. The informal typographical solution of the text makes it appear less authoritarian to resonate with the target. The IOHA and university logos (as required) are integrated through size and placement with reduced significance, giving it institutional endorsement.

This spatial structure’s location is an empty entrance foyer space through which most users of the building will have to circulate. The central prominent placement will require
pedestrians to walk around the structure, creating forced engagement. The scale is intimidating and indicative of the extent of the problem. The blackness of the sole and exaggerated tread, as on an industrial boot, is both serious and heavy, as is the topic, and articulates the gravity with which it needs to be dealt. The vertical dimension (approx. 3 meters) restricted by the ceiling height creates visibility from a distance, and adds hyperbolic meaning to the magnitude of the effort that is required to eliminate HIV. However the ‘message’ may not be so clearly read from all approaches. The organic black shape of the structure contrasts the monochromatic geometric interior in which it is contextually integrated, adding emphasis through its contrasting form. The black glossy reflective surface of the material creates a sense of hard, unforgiving edginess. The reflected shape on the floor helps contain the elements and is reminiscent of a shadow of gloom, a big black cloud hanging overhead to be avoided.

There is no additional media used in this ensemble.

The inter-semiosis or composition of modes results in a visual metaphor in which the visual and literal meaning correspond seamlessly, creating a clear and coherent multimodal message. The user engagement is both imposed and physical due to proximity, is intentionally intimidating due to scale and colour and strives to create an emotional shared spatial experience. The overall message is meant to be uncompromising and didactic, demanding that the viewer participates in eliminating HIV.

Figure 2. Proposal 2 – “Don’t hip hop without a drip drop” courtesy S. Jacobs, 2016, © University of Johannesburg. Photograph (by author) of a scale model of a multimodal spatial intervention, superimposed onto a visual of the existing space.
The second proposal’s message uses wording that has medical and cultural references. It aims to encourage the viewer to continually do medical HIV/AIDS tests, especially if they regularly change their sexual partners. The message seems playful and resonates with a particular culture, evoking a sense of playfulness, made possible by the imaginative composition of words, which rhyme, in a popular tone. The typography used helps to reinforce the message as a warning.

This particular interior ramp is utilitarian, and seldom showcases any design or information, and is located next to busy studio environments. It is fully integrated into its existing surrounding context. This is done with the use of cuboid forms which make up the signage overhead, and 2D symbols, inserted on the wall and floor. The access is from two sides, and the repeated message is thus multi-directional. The viewer is forced to circulate through the space until exiting at the other side, reinforcing the message over time.

The additional media used, includes two-dimensional symbols used on the floor (dance routine steps) and wall planes. The first symbols (arrows and footprints) are arranged in a directional sequence on the floor, suggesting an experience of entertainment, and instigating feelings of playfulness for the viewer. A set of life-size figurative dancing shapes are placed on the wall in repetition. They are suggestive and metaphoric for swapping partners. The repeated female figure in red, is symbolic of an infected person spreading the HIV/AIDS to multiple partners. The repeated use of the IOHA logo imagery is intended as an official branded reference to a service, thereby diffusing the message.

The level of engagement in this proposed intervention is intended to be observational (one does not need to participate in any other way). Engagement is imposed, as the viewer navigates down the ramp. Engagement is general (not targeted to a specific group), and is meant for anyone using the ramp. The experience is cognitive and physical for the viewer who is engulfed in, and navigates a complex set of media.

To conclude, this section presents examples of two narrative analytical descriptions of multimodal spatial texts according to the matrix of choice framework as interpreted individually by each author to demonstrate how it might be used.

6. Results and discussion

The research findings are presented as qualitative content analysis in the form of narrative descriptions of the meanings made through the use and arrangement of multiple visual and spatial modes using the matrix of choice analytical framework presented in Table 1. The use of this table (developed from SFL principles) proved a useful tool for describing how the meaning was made in the spatial-interventions analysed above when read as multimodal ‘texts’. It provides an alternative method of describing how the design of these ensembles relied on the agentive semiotic work of the student, and encouraged the use of the students’ own voice in a creative and expressive manner. Based on our test case we are of the opinion
that this SFL approach can contribute significantly to how we articulate the ways in which meaning is produced. It contributes to the development of a metalanguage used for discoursing the relationship between “material codes of production” and the “production of meaning in a social system” (Drucker, 1998, p.139).

6.1 Benefit in contributing to aids awareness and IOHA’s mandate

The multimodal HIV/AIDS awareness proposals produced by the students have been well received by other role players within the university who are mandated to implement the institutional policies on sexual reproductive health education and awareness. These projects are executed in close collaboration with IOHA who drive the process. IOHA often showcase these students’ proposal at workshops, seminars and conferences as tangible outcomes of the curriculum integration process. They are used as effective multimodal forms of communication that: provoke dialogue, and visually convey rich original messages generated by the students themselves. They are made available to other disciplines to illustrate different perspectives, possibilities and opinions for adopting alternative strategies to addressing the same problem. They also give valuable insight into the students’ response to, and understanding of the HIV awareness programme. Unfortunately very few have actually been translated in to full-size installations mostly due to financial constraints and therefore remain principally academic exercises, as the potential impact of the installations cannot be tested.

6.2 Benefit to teaching and learning in interior design

This multimodal approach can be valuable in the classroom for the development and analysis of future interior projects. It presents a new method of evaluating and discussing outcomes and contributes to developing the discourse related to spatial design. It also teaches students to design spatial interventions that are more experiential and more inclusive of diverse communities, cultures and values, as they enforce their designs with universal images, symbols and text, other than just using typical interior design elements. The success of the multimodal projects in creating meaning is highly dependent on the students’ spatial cognition and technical skills in executing the project. Development of these skills is embedded in most interior programmes, however it needs to be noted that some very good initial concepts never manifest as workable spatial solutions or in acceptable presentation formats.

6.3 Broader Implications for interior design

Despite this being a first attempt at using a SFL analytical method, both authors are of the opinion that it could have broader implications for the analysis and reading of multimodal spatial design. This research presents a potential alternative method for analysing meaning-making in built interior installations even though, in this case-study it was applied to scaled models. In practise this could prove a useful approach to determine how visual language
could be implemented in interiors to create meaning, how visual language is shaped by context and culture, and furthermore, its potential for communication.

7. Conclusion

Through the analysis of these three-dimensional and spatial multimodal proposals produced by students as part of a HIV educational programme, it was revealed that interior design has the potential to contribute to the multi-disciplinary nature of multimodality by introducing aspects of spatial design, which is currently not evident in existing literature.

The multimodal approach was of benefit to IOHA allowing students to express their own voices in modes that cut across cultural and language barriers and in turn produce additional insight into IOHA’s HIV awareness initiatives.

The further development of multimodal pedagogies is of benefit for interior programmes which rely heavily on visual communication. A deeper understanding of multimodality can benefit students when required to design meaningful multimodal and inclusive spaces to accommodate diverse communities.

This SFL approach and associated tool that the authors created has the potential to be used to also analyse full-scale interior installations with some adaptation to accommodate for the limitations and constraints associated with built installations. It may also support practice-led research and opens up new avenues for research and possible publications in the Interior Design field.

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**Acknowledgements:** Zachary Simpson (lecturer and researcher at the University of Johannesburg); all the interior design students who took part in these projects from 2016 to 2019; and especially R.Mpofu and S. Jacobs.
Tales of Surprise: Exploring Sense Making Processes Through User Narratives

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Abstract | An artifact firstly finds a voice in verbal expressions of people based on how they talk about and through them. Accordingly, products become cultural elements even before they are being used or became part of everyday live. As artifacts and their meanings are built up and contextualized in language; the language frames the meaning of artifacts, which are occurred in using. When a product comes into use, its meaning is created according to how the user interprets that product and communicates with it in a particular context. However, in the product design process, some codes and intended meanings are always assigned for presumptive uses by designers. Whether designers’ intentions make sense to users or not is always debatable. Relying on the approach of design semantics, this paper aims to investigate how users make sense of the components of a product, the Surprise Egg, when they are asked to interact with this product in pre-structured scenarios.

KEYWORDS | AFFORDANCE, SENSE-MAKING, USER NARRATIVES, SURPRISE
1. Introduction

The generic concept of the Surprise Egg includes a yellow capsule-like shell resembling an egg’s yolk, which contains a plastic toy, and this shell is covered with a layer of chocolate. We chose Surprise Egg since it is a multilayered product consisting of edible and inedible components, which again are distinguished as package and product.

The surprise egg concept raised as the idea of Michele Ferrero in 1968, and in 1974, the Italian company Ferrero turned this idea into a product that could be given to children so they could have a little "surprise" every day, based on the tradition of Easter, in this way also address to children and inner child in adults. ("Kinder Surprise", 2020)

Surprise egg is launched as gift for children and promises three experiences in one product with the “delicious milky taste of quality chocolate, a little toy and a BIG moment of surprise!” ("Kinder Surprise", n.d)

Moreover, it is promoted that these three elements create a world of fun and entertainment that helps children to develop their imagination while reassuring parents at the same time.

As the first step of understanding how users make sense of the components of a product, we looked over how the concept was presented throughout the history. Then, we examined advertisements as another important source to explore how the concept developed in different cultures such as Italian, French, German and so on. For instance, in one of the German advertisements, with the “how mom became the focus of the children’s party?” question, it emphasizes that “surprise egg can make you [the mother] a star in the eyes of children” (Figure 1; Advertisement 1). In another example (Figure 1; Advertisement 2), children’s happiness is associated with surprise egg. Moreover, with surprise egg you can fulfill your children’s wishes at once (Figure 1; Advertisement 3).

Figure 1. How mom became the focus of the children’s party? (Advertisement 1); Kinder Surprise fulfils three wishes at once. (Advertisement 2); The happiness that starts with good Kinder chocolate and continues with surprise (Advertisement 3).
In 1980’s one of the British advertisements (Figure 2) used the Humpty Dumpty character to refer to the Kinder Surprise, as Humpty Dumpty is a character in an English nursery rhyme and known in popular culture. The character is also a common literary allusion, particularly to refer to a person in an insecure position, something that would be difficult to fix up when it is broken, or a kiddie person (“Kinder Surprise”, 2020). Humpty Dumpty also appears in Lewis Carroll’s Through the Looking-Glass (1872) where Alice remarks that he is "exactly like an egg"; Alice clarifies that she said he looks like an egg, not that he is one. A similar connection is carried to the advertisement: The surprise egg looks like an egg, however it is not an egg.

Figure 2. A sentient egg, styled in the similar vein of Humpty Dumpty, who murmurs about surprise egg and then suddenly fall from the wall.

Accordingly, it can be claimed that with the surprise egg concept, new associations between egg and surprise are developed for the new generation. At (Figure 1; Advertisement 2), it is shown that the child is shaking the surprise egg to guess what that is inside of it. The same gesture can be observed before opening gift packages.

All above mentioned associations and their presentation generate our consumer culture and in time, they can evolve into different forms in our narratives. Nowadays, surprise egg toys have become collectible for adults as well. Collectors often try to acquire all toys within a themed set. Some even share their unboxing experience on social media or create their own toys and re-wrap them in packaging.

Relying on Krippendorff’s statement of “design as sense making” and Sarbin’s understanding of the narrative as an essential component of human’s world, we explored in a small scale how people make sense of the surprise egg. To do this, we organized and facilitated two
workshops with two different participant groups and collected narratives from the participants. Eventually, we interpreted the process and the outcomes in order to get insight on how two different groups, i.e., children and elderly, respond to the promise of the surprise egg.

2. Methods

Our research examines how two particular user groups, the children and the elderly, make sense of different layers of the Surprise Egg within the metaphor of ‘surprise’ through a series of workshops. The workshops were conducted at different times and places with the children and with the elderly separately. We visited the children (age 8-9) at the elementary school and the elderly (age 60-65) at the nursing home, which is their residence.

During the workshops, both groups were instructed to perform a number of tasks utilizing the Surprise Eggs. Our data relies on interviews with the participants as well as observations throughout these workshops. For the sensitization, interview topics are formulated to conduct casual conversations (Hassen, 2016).

Besides these informal conversations, follow-up semi-structured interviews were conducted to gain a deeper understanding of our participants’ narratives and explanations. Also, observations during the workshop supported our exploration on how our participants were experiencing the Surprise Egg. This method had a particular contribution to identify possible dimensions of variations among the individuals and groups (Lapan, Quartaroli, & Riemer, 2011).

All the data was analysed through ethnographic content analysis. Eventually, we identified particular categories of narratives according to both participant groups. These categories were mainly identified based on concepts such as structures of narratives, reinterpretation and affordance (Gibson, 1977; Krippendorff, 2006; Norman, 1999)

3. Workshops

This study is conducted with two different participant groups through a combination of purposive and convenience sampling. Therefore, we deliberately chose our participants as the children and the elderly based on the distinction between their experience and familiarity with the Surprise Egg: While the elderly had no previous experience with Surprise Eggs, the children were quite familiar with the concept. The workshop consisted of two sessions: The first session which is called “unboxing session” was designed to examine the first interaction of the participants with the Surprise Egg. The outcomes of this session provided us with insight on the following issues: How do the participants read the Surprise Egg and make sense of the package and the product within the context of surprise?, and do
the intended meanings within the product make sense to the participants who had no previous experience with the Surprise Egg? Following, in the second session the participants were required to build new artifacts by up-cycling the egg-like shells of the Surprise Eggs. The second session is called as “up-cycling session” and aimed to answer the following questions in the scope of meaning in the use: What does the Surprise Egg afford in the context of usability and form?; what kinds of narratives do the participants develop in the process of making?; and, how do these narratives accompany or lead to the making of new artifacts?

To be used in the workshops, two different surprise egg brands are selected evenly according to their plastic capsule’s form. Additionally, for the up-cycling session for each workshop group, a kit of materials was prepared to support participants’ attempts and inspire them for developing ideas and models. Therefore, the kits consisted of a variety of materials: Different types of ropes, piece of fabrics, EVA sheets, paperboards, balloons, plastic teacups, play dough, markers, scissors, glues, and etc. Moreover, some surprise egg toys’ were offered in a kit with empty plastic capsules.

3.1 Workshop I: A Day at the Nursing Home

3.1.1 Participants

The first group includes 8 male participants with an average age of 65 years, who did not have any prior experience with surprise eggs. They live at a nursing home, which has an additional rehabilitation centre. At this rehabilitation centre they usually work on hand crafts.

3.1.2 Procedure

In the first session in Workshop I, participants were asked to pick one surprise egg and unbox it.

The aim of Workshop I was observe how people who are not familiar with the surprise egg concept make sense of the semiotic references the product has while going through the steps of unboxing: Unwrapping the foil; ripping the chocolate shell in two or breaking it (can be simultaneous with unwrapping.); opening up the plastic capsule; and assembling the toy.

While the participants were completing the steps of unboxing, we observed interventions, which disrupted the surprise effect of the concept. Moreover, semi-structured interviews were conducted with each participant in every step, which reflect their reaction. At the end of the session, casual conversations were made about the toys that came out.

The second session started with a question to the participants by pointing the empty plastic capsules: “What can you do with this object?” In the following, we talked about their ideas.
A collective conversation took place and participants commented on each other’s thoughts as well.

As a next step, participants were asked to choose one of the generated ideas and make a rough physical model of the object by utilizing the material kit. However, the majority of the participants chose to describe their ideas by talking instead of making.

3.2 Workshop II: A Day at the Elementary School

3.2.1 Participants

The second group contained 12 students in the third grade of an elementary school, who are eight to nine years old on average. All of them were familiar with the surprise egg concept. The workshop was conducted under the supervision of the class teacher at a studio-based class.

3.2.2 Procedure

For the unboxing session, the children were separated into two groups and asked to pick one surprise egg and unbox it. During this unboxing session, the children were asked to tell about their surprise egg experiences, with some stimulating questions, such as “What made you happy about the surprise egg?” or “Do you eat the chocolate first or do you want to get the toy before eating the chocolate?” As they are familiar with the surprise egg concept, they completed the unboxing session in one step and accomplished easily from unwrapping the foil to assembling the toy. At the end of the session, the participants were encouraged to talk about assembling toys.

In the following, the children were asked what they could do with empty plastic capsules and they were encouraged again for modelling their ideas. This process lasted for about 15-20 minutes. Then, participants presented their outcomes.

4. Findings & Discussion

4.1 Workshop I: A Day at the Nursing Home

4.1.1 On Recognition

Krippendorff (2006) describes recognition as “correctly identifying what something is, what it can be used for”. According to Krippendorff, the ability to recognize crucially depends on previous experiences with similar artifacts as recognition always is re-cognition; cognizing again. To get insight on how participants recognize the surprise egg, we aimed to understand how they make sense of how it works.
After the Surprise eggs were distributed to the participants, most of them firstly hesitated about how they could open the package, since they had no prior experience with the product. In this stage, some of them had difficulties in understanding and hesitated in unwrapping the foil. One of the participants, for instance, thought that unwrapping the foil was enough for unboxing it. Still, most of the participants went through “unwrapping the foil” and “ripping the chocolate shell” phases properly. Two of the participants had difficulties in opening the plastic capsule, as they had no recognition and tried to open the capsule from the hinged point (connecting line) by prying up with rasp. While one of them pointed the juncture (Figure 3), he expressed that “At first glance, it seems like it should be opened from the upper part. After I tried, I understood so, and it was directly opened from the middle of itself.” In the light of this expression; we can say that the references on the product did not work as it intended.

Figure 3. Participant trying to open capsule from the hinged point (connecting line) by prying up with rasp.
Figure 4. A fish figure was out from one of the participant’s egg.

At the assembly phase, most of the participants had difficulties in recognizing the toys and tried to figure them out for a while. One of the participants, got parts of a fish figure from the egg (Figure 4), and could not assemble the small parts of the toy at once. But he wanted to tell that he can understand that this is going to be a fish, indicating: “It is just a fish, nothing else.” This statement initiated a conversation with the other participants on the fish when another participant came up and started to create a narrative about the toy: “It is a goldfish! It carries the other fish on its mouth to protect it from falling as a prey. This is how crocodiles do it.”

Overall, we observed that participants make sense through saying rather than doing, since they had difficulties in recognizing and assembling the toys. Such difficulties basically destroyed the experience of surprise, and resulted in hesitation and uneasiness.

4.1.2 On Redefinition

In the up-cycling session, participants were addressed with a stimulating question: “What else can you do with this plastic capsule?” Following, they started to generate new narratives with the egg capsules. These more context dependent narratives focused on defining new specific functions. Participants usually had the tendency of redefining the egg capsule as a unit for “storage”, where they could put their personal belongings, such as, pills, small coins, quarter gold coins, needles and buttons. Furthermore, one of the participants who was a former
fisherman, suggested that it could be used as floating pontoon for the fishing line. Additionally, two of the participants also asserted that they could make prayer beads or abacus by using modular capsules in this regard. Overall, we observed that past experiences and habits in daily life became were the main inputs in their new sense-making processes.

Participant whose plastic capsules had three holes underneath it; brought forward the "saltshaker" idea and acted out like sprinkling salt from the plastic capsule (Figure 5). At this point, we also interpreted it as building a part-whole metonymy.

We observed that the participants tried to explore what the Surprise Egg capsule affords without much change and intervention. In this sense, they utilized a pragmatic approach, which was inspired by their daily life contexts and practices. Furthermore, generated new concepts, which are conveyed with narratives from adult-perspective, were focused on single-functional usage.

When asked to turn their ideas into three-dimensional models, the participants did not implement their formerly generated ideas. They shifted from daily life context and focused on toy context, aiming to address to a child's point of view. For instance, one of the participants started to create a playground from the EVA sheet, which was supplied in the kit. He, then,
started to pose various toys on it and asserted, “If I were a kid, I could create such a playground for fun” (Figure 6).

Figure 6. A playground created by one of the participants at the up-cycling session.

4.2 Workshop II: A Day at the Elementary School

4.2.1 On Recognition

Participants of Workshop II were quite familiar with the surprise egg context and they accomplished the steps from unwrapping the foil to assembling the toy quickly. When they opened up the plastic capsule, they expressed their excitement, such as, “Look! What we got!” and started assembling the toys. In the assembling phase, participants generally had quick
recognition on concepts and assembled the toys successfully. Most of them were not content with just assembling the toy and started to build narratives with and around them. For instance, one group got a specific bear figure (Figure 7). They associated this figure with the cartoon character “Yogi bear and boo boo” and then made changes on it by merging with a part of (balloon) a different surprise egg toy (Figure 7).

Figure 7. One group of the participants got a specific bear figure and made changes on it.

One of the participants got the figure toy named creative smiley, which has the part for creating patterns on paper (Figure 8). The participant figured out its function and assembled the parts properly. According to the instruction paper, this toy’s main function was not for creating this kind of stamps. As it was designed, it was more likely for creating patterns on the paper through its holes. However, the participant wanted a piece of paper for creating a stamp by sandwiching the paper between the parts of figure. This was one of the early observations on participants’ tendency in making conceptual changes starting from the unboxing session.
In the unboxing session, all of the participants had a quick recognition of the toys and their concepts, and generally they did not have difficulties in assembling. It is hard to deduce about participants’ abilities of decoding the semiotic references as they were already familiar with the concept and did the work almost automatically. Overall, we observed that participants of Workshop II experienced the surprise effect by going beyond from the surprise egg’s offerings through creating new uses and narratives.

4.2.2 On Redefinition

In the up-cycling session, participants started telling their narratives. Most of them suggested to use plastic capsules for storing the small things as they expressed such as logo bricks, wristbands, lollipops, lovely beads, jewelry, tiny cars, and keys. Furthermore, one of the participants asserted that he could even store the shoes if it was big enough. Similar to the elderly, children created narratives in relation with their daily life and what the plastic capsules' materiality afforded them.

Afterwards, participants started creating new objects/concepts through intervening plastic capsules by using different materials and methods. These interventions referred to making changes on plastic capsules by merging them with various materials or making changes by colouring it, and eventually turning it into a new functional object through redefining its meanings (Figure 9).
As many of, one of the participants made a surprise box as a gift for her friend’s little sister. While she was presenting the concept, she expressed that, “I put some dough here to make the opening part more fun.” and showed how it is opened from the hidden line (Figure 10).

Figure 9. While participants generating new concepts with plastic capsules.

Figure 10. Participant hides the opening line to get enhance the surprise effect.
One of the participants created a toy, which resembled Minion’s characters. The toy figure was created from plastic capsule and was merged with a balloon (Figure 11). While indicating the knot point underneath the balloon, she expressed that, “The figure jumped on the balloon like in the cartoon. Look, the thing underneath the balloon helps for jumping!”

According to the outcomes of the workshop, it can be seen that participants redefined the toys by merging them together with other objects, colors and materials (Figure 10 and 11).

With a different approach, a participant created a toy, as a dinosaur figure by changing the plastic capsule by drawing on it. The participant explained while acting out the figure “It is like a dinosaur; we can play with it by opening and closing the mouth.” (Figure 12)

According to the participant, this could also be used as a storage box for valuable things as well. He placed a cushion inside the capsule and indicated, “There is a beautiful place where we can store our valuable things.”

Figure 11. A toy character, which can jump around thanks to its elastic balloon body.
In general, it is observed that both of the narratives and objects in redefinition process refer to multiple concepts, functions, and users. The participants were familiar with the surprise egg concept and also eager to redefine them benefiting and extending the capsules' affordances.

5. Conclusion

Within the scope of this study, we examined the surprise experience which is supposed to be the main element of the surprise egg concept and tried to figure out how the surprise experience changed in different layers. Furthermore, observing how new surprise effects are built up by participants helped us for understanding its usage in new sense-making processes. In this context, two different participant groups experienced different difficulties in various stages. Nonetheless, these difficulties provided us to take a new approach on “re-cognizing” and “re-defining” processes which are also related to familiarity with concepts and objects.

Designers and users cannot be presumed to see the world with the same eyes. It is also the same for different participants as their cognitive models and mythologies limit every participant (Krippendorff, 1989). At this point, starting to trace the concept of the surprise egg from a historical glance and finally integrating it with today’s narratives from different groups provided us with an initial insight how our participants made sense of this product.

As Krippendorff (2006) states children learn to see affordances by experiencing that what can they do and what the things can do for them. On the other side, most of the adults put their actions in practice without any need to reflect or decide what is next. Our findings from...
this initial study support this approach: Participants who were not familiar with the surprise eggs at all, had difficulties in recognizing and thus making sense of it. In these situations, we observed that narrating on or around the object became an important part of experiencing and thus making sense of it. Therefore, stimulating narratives, which brought about meaningful worked well and encouraged new sense-making processes.

To conclude, this is a small-scale ongoing study through which we aim gaining insight on different processes of sense making, by utilizing a particular product, the surprise egg. Due to limitations based on time and resource restrictions, as well as the small sample size we cannot make a deeper analysis. However, we hope the methodology we followed can be applied for other products, participants, and cases for further research aiming at exploring sense-making processes of different participant groups.

References


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The Design of Politics: Understanding the Arrest of Cesare Battisti Through the New Media Factor

Noemi Biasetton

Abstract | At present, populism is best understood as a combination of contextual issues (demand side) and the availability of successful parties (supply side). This article queries the impact of the new media factor as a third component for the fortune of contemporary populism, with the aim of clarifying how the features of new media communication can reflect or enhance the characteristics proper of populism. In order to do this, three aspects of the new media factor will be taken into account, hence the mediatization of politics, the process of disintermediation, and visual storytelling. Specifically, the paper will analyze a controversial video posted on Facebook by the Minister of Justice Alfonso Bonafede in 2019, displaying the arrival at Ciampino Airport of the ex-terrorist Cesare Battisti. The latter will be used to explicit a coincidence of visual elements on digital media that can help political leaders better engage with their online audience, focusing on the assumptions that images can improve and facilitate the learning process, create identitarian spaces, and facilitate emotional involvement with the audience.

KEYWORDS | POPULISM, NEW MEDIA, VISUAL COMMUNICATION, CESARE BATTISTI
1. Introduction

In the last twenty years, many Western countries attended the rise of the so-called populist parties. Started out mostly as popular and/or local movements and small associations, many of them eventually shook the established political scene by gaining legislative seats, reaching government offices and hampering many accomplished traditional parties during the elections held in the last decade. On one hand, this phenomenon is being explored by scholars all over the world, reaching higher levels of sensitivity and specificity as more and more political events unfold. On the other, the word “populism” escalated to a point of no return in its popular use, acquiring an often-oversimplified significance.

In the scientific literature produced on the topic so far, it has long been a conventional procedure to begin any book or paper by stating that no one knows what populism is, and thus by noting the innate ambiguity of the term. A predictive episode with regard to this point occurred on May 1967 at the London School of Economics, where—among many academics—American historian Richard Hofstadter gave a keynote lecture titled Everyone Is Talking About Populism, but No One Can Define It. What was at the time a provocative title became later an actual presage, as in the last fifty years the term populism was discussed and enriched with more and more definitions given by scholars eager to bestow significance to this phenomenon.

However, this paper will not to take in consideration the many definitions given throughout the years to the term “populism” and will rather proceed to analyze the causes which allowed this phenomenon to spread, focusing on the communication modalities that co-occur with it.

2. Demand side of public opinion

Although the electoral fortunes of populist parties are open to multiple interpretations, according to almost all scholars the phenomenon of populism is articulated in demand and supply side factors, which are complementary to each other. The first factor mainly focuses on how economic insecurity affects populist support, whereas the second analyses the cultural attitudes adopted by populist parties—both left and right-wing—which allowed them to address social grievances and common concerns. Specifically, on the demand side there are two primary causal theories: the economic grievance model and the cultural backlash model. Often presented as opposing views, these two seek to provide answers to phenomena such as socialization, grievance formation, causal attribution and the formation of collective identity, which together constitute a breeding ground for the birth of populist parties.

The intuition behind economic grievance theory is that the economic fractures that were created and/or deepened by globalization generate potential public support for those movements which position themselves outside the political mainstream and oppose the rules dictated by the establishment (Rodrik, 2018). Specifically, according to this argument, economic insecurity and the ensuing perception of being forgotten fuels disdain for political
elites and institutions, reinforcing parties who bolster labor mobility and promulgate supranational governance (Andersen et al., 2017).

The second theory on the demand side is the cultural backlash thesis formulated by Ronald F. Inglehart and Pippa Norris (2016), which argues that the increasing accreditation of populist parties cannot be explained as a purely economic phenomenon but should be seen in large part as a reaction against progressive cultural change. Reactions to these developments, according to the experts, instigated a counter-revolutionary backlash among older generations and the less educated society classes which resulted in the decline of their livings standards and in their rejection of progressive values (Inglehart, 1997; 1999).

In short, if on one hand sectors once culturally prevailing in western Europe reacted angrily to the depletion of their privileges and status quo (the right-wing populist electorate), progressivists found their voice in left-wing populists’ claims for inclusionary, more socio-economically inclined policies. Eventually, while examining these two theories about the demand side (the economic-inequality perspective and the cultural backlash thesis) researchers stated that

“cultural values, combined with several social and demographic factors, provide the most consistent and parsimonious explanation for voting support for populist parties.” (Inglehart & Norris, 2016, p. 4)

3. Supply side of party strategy

If demand side explanations are important to understand why populist parties emerged in the first place, supply side factors are valuable to figure out how the angry and disillusioned middle-class depicted in the previous paragraph was able to mobilize and eventually find a voice in populist parties across the Western world. The supply side of politics, in fact, applies when populist movements collect the quandaries and criticalities raised by common concerns, forge a narrative, and use that to activate political mobilization. Unnoticed (or maybe unwillingly spotted) by the so-called élite, many parties eventually pooled years of research into small communities’ local vernacular, popular notions and national resentment, and mixed them with the most up-to-date tools for data analytics and advanced communication strategies borrowed from political worldwide masters (i.e. Vladimir Putin, Viktor Orbán and Donald Trump). The end result is they present a story that is meant to resonate with their base, the demand side, that says: here is what is happening, this is why, and these are the people who are doing this to you. According to Klandermans (2004), it is the process of mobilization that links demand and supply sides. And thus, because mobilization is the marketing mechanism of the social movement domain, the study of mobilization concerns such matters as the effectiveness of (persuasive) communication, the influence of social networks, the frames and ideologies movements stand for, and the constituents of identification they offer.
4. The new media factor

What has also been mentioned by scholars exploring the topic is that the common thread distinguishing left and right populism is their underlying ideologies. On the contrary, what binds these two types of politics together is their mobilization processes, which often involve social networks and powerful communication strategies. Indeed, as Surel (in Laclau, 2005, p. 176) claims:

“against the idea according to which populism would represent a relatively stable and coherent trend, typical of the new radical right, we want to defend the idea that it is less of a political family than a dimension of the discursive and normative register adopted by political actors.”

The introduction of a third explanatory component to unravel the intricate phenomenon of populism should not be intended here as the addition of a missing load-bearing element to previously examined theories. Nor should this component be looked at as a bonding agent between the demand-supply sides interpretations. But if we start from the assumption that politicians can be understood as strategic agents (Aslanidis, 2018, p. 1244), one cannot ignore that the advent over the past decades of new media completely revolutionized the key features and strategies adopted in the global political communication landscape.

The discursive strand in populist scholarship has been active at least since Ernesto Laclau’s (1977) first take on populism. In his book *On Populist Reason* (2005), he defines populism as “a discursive strategy of constructing a political frontier dividing society into two camps and calling for the mobilization of the ‘underdog’ against ‘those in power’.” Most importantly, for Laclau populism is a form of mass politics that, far from threatening democracy, is rather a symptom of its liberating and radical horizons. Populism is thus for Laclau the latest link in a signifying chain that defines politics in terms of democratic practice, the hegemonic formation of group identities, and the play of language and discourse. According to him, populism is therefore not an ideology, and cannot be attributed to a specific programmatic content. A similar analysis of populism has also been taken into account by Taggart (2000), who associated the term populism with ambiguous definitions such as chameleon-like nature, essential impalpability or even conceptual slipperiness. To him, as well as to many other scholars (i.e. Mazzoleni et al., 2003), it is precisely thanks to this adaptive nature that populism can adjust to different contexts. For this reason, too, the distinctive nature of modern media and their capacity to affect the opinions and attitudes of mass audiences are key factors in the political arena (Mazzoleni, 2014). The contribution of such media to the rise of populist movements and parties is the research field that this paper wishes to tackle.

In order to do so, this section of the paper introduces a third causal and interpretative factor to help explain the rise of populism, called the new media factor, which will serve as an investigative query for the success of politicians’ supply side through media communication. More specifically, the new media factor will center on the changes occurred in the new
realm of communication focusing on the processes of political mediatization, disintermediation, and visual storytelling.

4.1 Mediatization of politics

Throughout history, the term mediatization gained many different meanings in social and cultural research. According to Couldry and Hepp (2013, p. 197), the emergence of this concept can be dated back to the early twentieth century, with Ernst Manheim’s (1933) postdoctoral thesis *The bearers of public opinion*, and later with the works of Jean Baudrillard (1981), Jürgen Habermas (1984) and Ulf Hannerz (1990). In their works, all authors refer to media in different manners, and attribute even more varied values to the concept of mediatization. Yet, the reason they all converge in Couldry and Hepp’s list of mediatization theorists is their shared vision of mediatization as a way to decipher change. Specifically, they used mediatization as a concept to read the emergence of a particular medium in different historical socio-cultural processes. Far from being an established methodology, we can assume mediatization is more an investigative approach to media, “a meta process that consists of a changing everyday life, of changing identity constructions and social relations, of a changing economy, democracy and leisure, of a changing culture and society as a whole” (Krotz & Hepp, 2011).

In political communication, mediatization can be looked at as a long-term process of convergence between media-logic and political-logic occurred over the course of the last decades. This process happened mainly in two phases: firstly, with the media distancing from political power and becoming more and more marketed; secondly, with political actors strategically adapting to the logic followed by the media in order to gain visibility and attract voters (Esser, 2013). Eventually, since commercial media needed to “sell” political issues, they underwent a process of making those issues more understandable and interesting for the audience. This of course forced political actors to take into account media, who had to recalibrate and modulate their communication strategies to fit accordingly.

4.2 Disintermediation

The term “disintermediation” first appeared in Elihu Katz and Daniel Dayan’s (1992) book *Media Events: The Live Broadcasting of History*. In the pages of the book, written in a period of absolute television-predominance over any other media, the authors name the presence of another television, different from the everyday kind, which they define as “a television of occasion” (Dayan & Katz, 1992). With this term, they refer to something other than the daily broadcasting of tv series or news. Some of the events reported as examples are the funerals of President Kennedy, the wedding of Charles and Diana, the fall of the Berlin wall in 1989, facts related to the Watergate scandal and many more. The intuition of Katz and Dayan, which first dealt with the innate ability of media to “spectacularize” events through media, posed some cornerstones for the future conceptualization of the process of disintermediation. On one hand, they showed how certain media have the power to clear a path for skillful public figures to talk over the heads of the “middlemen” who normally
mediate between leaders and their public, claiming that live broadcasting of media events “has redefined the relative power of organizers, intermediaries, broadcasters, and viewers, and the very essence of a public event” (Dayan & Katz, 1992, p. 217). On the other, they demonstrated how media events can work as disintermediation channels carrying the television public into the “sacred center” of society (Dayan & Katz, 1992, p. 89). Nowadays, the advent of new media extended the opportunity, for civilians as well as for politicians, to autonomously publish and spread daily events online, reaching an unprecedented level of life “spectacularisation”. In the political realm, this meant for politicians to be able to independently manage their contents online, deflecting the usual mass-media “middlemen” mediation process.

4.3 Visual storytelling

In the past fifty years, studies in the psycho-cognitive field demonstrated that the attitude towards political leaders is regulated not only by the evaluation of proposed policies, but also and foremost by the emotional response to their non-verbal behavior (Masters & Sullivan, 1993; McHugo et al., 1985). At the same time, during the first half of the 1980s, philosophers and psychologists introduced for the first time the theoretical debate on narrative, acknowledging its centrality in the cognitive processes that lead individuals to the recognition of their self and/or of a specific community. These two factors, united with the explosion of the internet and the advance of communication technologies, created favorable conditions for the spreading of the “visual storytelling” model, today even further strengthened by digital media systems. By figuring as a sort of “immersion mechanism, a tool for profiling individuals, a technique for visualizing information”, storytelling “establishes narrative systems that lead individuals to identify with models and to conform to protocols” (Salmon, 2017, pp 7-10).

Transplanted in political communication, visual storytelling demonstrated to be in the last decades an impeccable narration model and tool, with non-verbal language shaping largely the processes that feed the narrative of contemporary politics.

5. Visual populism

In Understanding Media, McLuhan (McLuhan, 1964, p. 80) correctly foresaw how advances in technology would have allowed rapid translation from one language to another. Indeed, as much as previous ones, the advent of new media brought a transformation in language, and subsequently also in culture, interactions among individuals, and modes of consciousness. They did so by adding to the spectrum of communication forms—not by destroying old means of communicating (Ong, 1977, pp. 82–91)—and by creating a new environment (Meyrowitz, 1986, p. 19) where the new medium is included in the previously set ones, adding new layers of understanding to the media matrix. Although digital media comprise all digitized content that can be transmitted over the
internet or computer networks (which can include text, audio, video, and graphics), this research will specifically focus on visual imagery, both still and in motion. The reasoning behind this is that, due to the advent of new media and the consequent change of cultural practices related to information processing, politics has inexorably shifted onto a visual platform.

More specifically, this section of the paper questions the existence of visual populism, an expression coined to explicit a coincidence of visual elements on digital media that can help political leaders better engage with their audience on-line. Visual populism will be considered here as a proper communication mode, from which it derives a distinctive visual rhetoric which figures as a sort of algorithm for populist communication. In order to show how images on new media can foster the populist discourse, this theory will focus on three assumptions: that images can 1) improve and facilitate the learning process, 2) create vernacular, identitarian spaces, and 3) facilitate emotional involvement with the audience.

5.1 Visual learning

Since the 1960s, the role of images in the learning process has been largely explored by scholars of various fields, including those belonging to communication and political studies. In particular, starting from the 1990s, numerous researchers in this area started investigating how televised pictures, via mirror neurons, could foster a learning system able to engage the user’s feelings towards the sender (Chaudhuri & Buck, 1995). In light of this, politics increasingly involved visual storytelling in communication processes through the use of media, which—besides ensuring a broader and more densely branched communication flow compared to traditional media—generate through the use of visual imagery a faster, distinctive and direct kind of learning (Tversky, 2019, p. 242).

Audio-visual communication, also, is capable of generating an accurate representation of non-familiar people and objects (Graber, 2001, p. 19), thus allowing leaders to provide their followers information on socio-political issues they might have never heard of or may have encountered only in purely verbal contexts. Political actors who make use of visual technologies to communicate with their audience have therefore the power to construct reality in a specific way, and even to frame particular situations by telling a story with the help of visual aids.

5.2 “Framing” and the process of identification

The employment of audio-visual systems by political leaders is useful not only to instruct their audience about political and social issues, but also to create a vernacular shared idiom which is unique and recognizable from the community of one particular party. Through visuals, indeed, leaders have the possibility to create virtual identitarian places, where social media become a bridge able to connect the imaginative with the real.

On the subject of identity and politics, the contribution of George Lakoff is of paramount importance. Specifically, in his Don’t think of an elephant! (2004) the American cognitive linguist and philosopher introduced the concept of “frame”, defining it as a set of
interrelated ideas which nonetheless belong to the same subject and to an unequivocal perspective on it. If effective, the frame works as a sort of setting wherein ideas assume an organizational shape, becoming persuasive when language evokes them. Through this method of cognitive assonance, the leader conveys both with words and visual representation a collective imaginary which becomes a sort of genetic heritage of social belonging. This way, the social media pages of leaders become environments able to feed and direct the “common feeling” of their followers, clarifying who is part of one community (defining the “us”) and who oppose to it (identifying “them”).

5.3 Emotional involvement

As we have seen so far, audiovisual systems allow anyone who use them to provide explanations on complex socio-political topics and to forge a repertoire of signs shared within a specific community. Compared to verbal communication, images are processed faster, categorized more efficiently and better remembered (Grabe & Bucy, 2009, p. 12). In fact, while in verbal communication affective stimuli have to be imagined, in visual communication they can be synesthetically, sensually, and kinesthetically perceived, triggering a stronger, more direct and faster response in the receiver. Furthermore, affective processes elaborated in the subcortex nourish conscious experiences that are complex and abstract, turning them into vivid and polysemic signs (Coëgnarts & Kravanja, 2012). Through a sort of Gestalt composed of formal aspects (such as color, movement, pacing, camera angle, etc.), objects and subjects, images carry signals that are later transformed in affective impulses able to increase the effectiveness of identification and learning processes.

6. Case study: “The story of a day we will hardly forget!”

On the 14th of January 2019, the Minister of Justice Alfonso Bonafede (representative of Five Star Movement) posted a video on his Facebook page showing the arrival of Cesare Battisti in Rome titled “Il racconto di una giornata che difficilmente dimenticheremo!” (in english: “The story of a day we will hardly forget!”). Battisti was a member of the Armed Proletarians for Communism\(^1\) (PAC) and had been sentenced in 1979 to twelve and a half years of detention to serve out multiple life sentences for murders during the “Years of Lead”. In 1981, after only two years, he successfully escaped from prison and spent nearly four decades on the run, with granted asylum in France, Mexico and eventually Brazil. His extradition here was halted by former president Luiz Inácio Lula da Silva and generated diplomatic tension between the two countries ever since. Battisti was eventually arrested on January 12th, 2019 in Santa Cruz de La Sierra (Bolivia) in an international police operation and brought back to Rome Ciampino airport on an Italian-flagged Falcon 900 plane.

\(^1\) Armed Proletarians for Communism (Proletari Armati per il Comunismo) was an Italian far-left terrorist group founded during the “Years of Lead”.
The video posted by Bonafede, which was watched over 350 thousand times in the twenty-four hours after its publication, is interesting for the reasoning of this paper under many levels. On one hand, the processes that led minister Bonafede have that video produced and spread resonate with the three characteristics of the new media factor taken into account in the third paragraph. To begin with, the event of Battisti’s arrival in Rome elicited a great stir on social media, where the case lived and escalated quite rapidly through the posts of many international political personalities. Indeed, besides the posts published on Twitter by Italian politicians, the arrival of Battisti in Italy was even announced by Eduardo Bolsonaro, son of the newly elected president of Brazil Jair Bolsonaro, who responded to a tweet by Salvini with the words “Brazil is no longer a land of bandits. The ‘small gift’ is coming”. (Figure 1) The video is thus the result of the underlying processes of politics mediatization, since politicians—in order to “sell” political issues—undergo a process of making those issues more understandable and interesting for the audience. The act of defining Cesare Battisti a “gift” is used here as a conceptual metaphor (see Lakoff, 2006), and serves as a conceptual tool for structuring, restructuring or even create reality. After that, by considering the arrival of Battisti a “media event”—as defined by Katz and Dayan (1992)—the choice of the medium onto which the video was posted is as obvious as reasonable. In fact, by using Facebook as the preferred sharing platform, Bonafede was able to autonomously publish and spread the product online, reaching an actually unprecedented level of spectacularisation and at the same time deflecting the traditional mass-media “middlemen” mediation process. With regard to the narrative choice, this episode unveils the “storytelling machine” (Salmon, 2017) with the boundaries between fiction and non-fiction growing increasingly fragile.

Figure 1. Eduardo Bolsonaro’s tweet on January 13, 2019.
Dismembered in five sequences and twenty different shots, the video depicts different moments of Battisti’s arrival in Rome together with his departure towards prison. To play it are three actants: the “villain” (Cesare Battisti), the “hero” (penitentiary police, who is also responsible for the production of the video) and the “sender” (Alfonso Bonafede).

In the first three seconds, which serve as an introduction, Cesare Battisti is presented through a series of five black and white pictures with a camera shutter clicking sound. These initial frames are of paramount importance because they showcase the “villain”, which is going to be seen shortly after in his journey towards prison. Furthermore, the sequence composed by a series of black and white pictures with the shutter sound is a classic montage used in television fiction to frame either wanted persons or spied ones (for example, the same sequence settings resemble in an almost identical fashion the end of the sixth episode of The Sopranos first season, where uncle Tony is captured with a photo-finish by an FBI agent at a dinner party as the new boss). (Figure 2)

![Figure 2. Introduction of Battisti’s video compared with a famous sequence from the TV show “The Sopranos” (1999).](image)

In the following five sequences, on the notes of Comment Te Dire by French artist Bertysolo, the heroes and the sender showcase their conquest (the capture of the villain), thus dramatizing an institutional event aimed at radically transforming the public opinion on a specific and major issue. (Figure 3, Figure 4) Besides being useful for the identification of the “villain”, the video is very effective in creating a visual story which simultaneously frames a current event (Battisti arriving in Rome after his capture) and gives the viewer a key to read...
the whole story: Battisti’s forty years on the run, the diplomatic issues with the countries that granted him asylum, the satisfaction of the victims’ families finally getting justice, and more. Indeed, by staging the detainee as subordinate to the authorities, the sender of this message is expressing a clear position on the subject yet without making use of verbal communication. In the video, both structure and content have the ability to elicit responses which direct attention to specific features of the message, which is expressed through the rise of music in key moments, with gestures of police officers and the interactions between them and Bonafede.

The last crucial aspect of this event is that the video became the subject of a great media debate, triggering many outraged judicial authorities who defined the posting of such video “one of the most shameful and grotesque pages of our republican history” (Unione Camere Penali Italiane). It was indeed the Unione delle Camere penali who, on the 15th of January 2019, published a public statement where the lawyers pointed out the violation of the article 114 subparagraph 6-bis of the Code of Criminal Procedure, which states that any publication of people deprived of their liberty is strictly forbidden unless consented. Also, according to Mauro Palma (National Guarantor of the rights of persons detained or deprived of their liberty) the staging of Battisti’s arrival was a clear violation of article 42-bis subparagraph 4 of the Penitentiary Law, according to which detainees should be protected from public’s curiosity and/or publicity during the process of accompaniment from one place to another. Before having the video removed on the 17th of January (three days after its publication), Palma on a public statement eventually warned about “sentences and images that aim to reach consensus through a language stranger to that of Constitution and that end up consolidating a culture of social disruption and tension.”

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2 In Italian: “una pagina tra le più vergognose e grottesche della nostra storia repubblicana.” The translation is curated by the author.

3 In Italian: “È vietata la pubblicazione dell’immagine di persona privata della libertà personale ripresa mentre la stessa si trova sottoposta all’uso di manette ai polsi ovvero ad altro mezzo di coercizione fisica, salvo che la persona vi consenta.” Divieto di pubblicazione di atti e di immagini, Articolo 114 Codice di procedura penale (D.P.R. 22 settembre 1988, n. 477). The translation is curated by the author.

4 In Italian: “frasi e immagini che puntano ad acquisire consenso attraverso un linguaggio estraneo a quello della Costituzione e finiscono per consolidare una cultura di disgregazione sociale e di tensione”. Retrieved from www.garantenazionaleprivatiliberta.it The translation is curated by the author.
Figure 3. Sequences analysis (01-02).
Figure 4. Sequences analysis (03-04-05).
7. Conclusion
As politics has increasingly become intertwined with the power of media to visually display reality, people’s perception of politics is based to a large extent on the contents shared by politicians on social platforms. As seen previously with the case study of Battisti’s video, visual populism shows how politicians can frame and construct reality in a specific way, by telling a story which is meant to resonate with the electorate with the help of visual aids. The case study also exemplifies how audio-visual products shared on new media can enter in the public debate, overshadowing news reports by traditional media and dictating new standards of newsworthiness. Lastly, the case shows how images can elicit a juridical debate—which would have been unthinkable just a few decades ago—thus reinforcing the idea that images can do harm, whether intentionally or not.

References
The Design of Politics: Understanding the Arrest of Cesare Battisti Through the New Media Factor


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"The Enlightenment of the Contemporary Transformation of Chinese Traditional Visual Space Perception on Cultural Sustainability design"

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Abstract | "Visual perception," which reflects a very complex social-cultural phenomenon. How humans percept the surrounding world through vision, also how humans express or "transfer" the visual impression into the creation of artifacts such as painting and space, is the key to creating the understanding bridge between tradition and modern, western and eastern. To achieve this research goal, author explores the commonalities between Chinese and Western visual-spatial expressions through the analogy between traditional Chinese landscape painting and Western modern art, and explores different ways of transformation the traditional visual-spatial artifact codes by exploring the common visual themes maintained between traditional landscape painting and Chinese contemporary art, so as to explore the cross-cultural elements of traditional Chinese landscape painting, which is a traditional symbolic language system, and to guide the practice of design during the process of transformation from traditional to modern. The visual identity design of Art & Media College, Tongji University, was created during this process of researching. This practical design project allows people with different cultural backgrounds to sustainably, understandably and acceptably attend to, this practical project, a sustainable transformation about design approach and tools have been built up.

KEYWORDS | VISUAL IDENTITY DESIGN, VISUAL PERCEPTION, TRANS-CULTURAL UNDERSTANDING, CULTURAL SUSTAINABLE DESIGN, EAST ASIAN ART HISTORY
1. Culture is the Source of the Sustainable Development of Design

It's the sustainable development of culture the core of the Sustainable Development Goals (SDGs) stated by the United Nations. If the SDGs take economy, society and environment as the three pillars, then culture and creativity make important contributions laterally to each pillar. “Its culture shapes the way you see the world, its language informs the way you think, its customs structure you as a social being” (Willis, 2006) Culture is also a constant source of the development of design, which, on the one hand, originates from human needs and the crises and opportunities that exist in human development; on the other hand, it also exists in the understanding, interpretation, and reflection of the world by human beings. Therefore, "Design is more pervasive and profound than that generally recognized by designers, cultural theorists, philosophers, or laypeople." The sustainable development of culture brought by design is to form a consensus with an international identity by creating keywords and key propositions that belong to contemporary Chinese culture in a global coordinate system, which are transformed into theoretical basis that can be used for modern design, and integrated into the modern living system under the impetus of design practice.

2. Cultural language is the Source of Diversified Development of Design

"I've always been a student of culture-I've been thinking about the importance of culture for product design, and experimenting with cultural thinking and tracking or exploring ways to influence culture. I strongly believe the way that culture designs us, so I recommend taking cultural thinking as a framework to assist us in design. Cultural thinking is a way of actively observing the behaviour of design, its impact on our culture, and the way we think about improving human interaction with others in society. While understanding, understanding itself reshapes our perception in turn. In the process of the transformation of design discourse, it is also the recreation of design culture." (Madray, 2017)

Compared with the profound human civilization, the history of contemporary design is not long, and its development time in China is even shorter. However, the perception of the same thing by people in different regions has differences in terms of cultural thinking and cognitive understanding, the relationship between design and each cultural matrix is inextricably linked. Therefore, the diversity of culture and language also provides more possibilities for the development of design.

The design community in China is currently in the transformation stage (Lou Yongqi, 2015), in universities, this is reflected in the following two aspects, I), it introduces, studies and learns from the design education system of western universities to cover and integrate China's design education practice and the innovation strategy system of enterprises -
universities - government trinity service design, inclusive design, strategic design, social innovation and other design frontier areas from point to whole; ii) "Our thoughts shape our spaces and shape our tools, our tools and space return the favour-as Steven Johnson tells us" (Madray, 2017), While adapting to Western design theories and tools, Chinese design is also constantly looking back to sort out the long historical traditions of the past. Interdisciplinary research, such as exploring the inspiration of modern design from the cultural foundation according to the characteristics of regional culture in combination with Sociology, Art History, and Anthropology, the explorer for example: Wang Xin and Wang Shu from Chinese Academy of Fine Arts, Ji Tie from Hunan University, et al. Exploring design theories that are suitable for one's own cultural characteristics in the process of development is not only an attempt to strengthen China's discourse power in international design culture, so as to make its time-honoured and modern civilization value to spread more widely, and to achieve cultural renaissance, but also a cultural reflection on the difficulty of the common design to deal with the localized development.

3. The Carrier of Visual Perception – Chinese Traditional Landscape Painting

Chinese traditional landscape painting, as an abstract artistic expression of conscious thinking, is a good starting point for studying visual perception.

Chinese traditional painting has always been different from traditional Western one, in both development and objectives. The trend of modern design theory is going towards interdisciplinary and cross-domain development. Hence, the exploration of the traditional culture in order to trace back the source of a theoretical guidance of Chinese design development seems to be the new direction along which moving forward: a perspective that will help in shaping a modern and inclusive language of Chinese design and will offer a clear understanding of the different cultural background.

The subject of this paper is Chinese traditional landscape painting, which acts as a carrier of visual space. In the process of painting, people are also repeatedly "designing" to confirm the thinking pattern in their hearts. "Visual perception" is a very complicated social and cultural phenomenon. How to "see" and how to express "what you see" are social or cultural discourse acts. There are various forms of "seeing", and the socio-cultural connotations they include are also complex and diverse. Vision is defined as a kind of "thinking" by Rudolf Arnheim in his book "Visual Thinking: Psychology of Aesthetic Intuition"; In Gestalt psychology, visual perception is the thinking that exists in vision; Susanne K.Langer, the representative of symbol aesthetics, also stated that what we see with our eyes is a form of the joint construction of sensory and intellectual organs.
4. “Kan[seeing]” and “Guan[observing]”

4.1 Thresholds of “Kan[seeing]” and “Guan[observing]”

The author analyzed the connotations of the following verbs related to "seeing" in Chinese traditional painting theory in combination with the context of ancient Chinese writing:

<table>
<thead>
<tr>
<th>Table 1. Thresholds of “Kan[seeing]” and “Guan[observing]”</th>
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<tbody>
<tr>
<td>From “看Kan[seeing]” to “观Guan [observing]”</td>
</tr>
<tr>
<td>kàn  jiàn Kgú Wāng shì Zhān Zhú Pàn chá dú lán Guān</td>
</tr>
<tr>
<td>看见  窥望 视  觇视  侧视  仰视  观望  看到  盼望  观察  目睹  总览  观看</td>
</tr>
<tr>
<td>Reflection of objects  Interaction between subjective and objective  Subjective perception</td>
</tr>
</tbody>
</table>

Among them, the character "Guan" is obviously more in line with the deep definition of vision given by Arnheim and Susanne K.Langer.

It's originated from Xi Či 系辞 (I) of I Ching Yi jing 易经 (Book of Changes): "Looking up to observe the phenomenons in the sky, looking down to find out the laws of the Earth."

"The earliest understanding of the character “Guan” can be found in the I Ching."

It was stated in “Xiang 象” that “Winds moving above the Earth, Guan.” Guan are formed by the two trigrams representing one the Earth and the other Wind moving above it. “According to this explanation, both the human experience of observing the outside world and the ability to perceive it in its unity are involved: an ontological approach that connects and combines the human heart-mind experience with Nature - i.e. the Tao Dao 道, the origin of all things.”

Zong Bing 宗炳 of the Southern Dynasties said "Settle the hearts to view the Tao", as a mode of thinking that people use to experience the Great Law of universe -Tao, "Guan" is a verb that can be implemented concretely, and the object of "Guan" is the Tao. The specific creation of a landscape painting is carried out under the guidance of the thinking mode of "Guan", and a thinking system of visual perception completely different from that of the West has been formed.
4.2 Object of “Guan” - the Source of the Physical Images

"Guan" is a kind of structural "seeing". It has cultural presuppositions, among which one of the important points is the concept of "source of physical image". This also leads to the unique characteristics of Chinese landscape paintings, such as containing four-dimensional space-time in two-dimensional pictures. The reason is that the concept of "Guan" predestined that Chinese landscape painters do not paint what they see or what they know, but their feelings and understandings of "the source of physical images" in the world they live in. Such feelings are not a matter of being inside, but a sense of being outside.

Xu Fuguan stated in his "Spirit of Chinese Arts" that "the so-called Source of Physical Image is the nature of what physical matters are derived from, however, the nature cannot be separated from the form" and "Only when painting can express the nature of things, can it be said 'getting the truth of things'" (Xu, 2001). The above statements show that everything has common sense, and only artworks that can express the essence of nature can reflect the Tao behind the physical images. Contemporary scholar Wei Bin said in his "Explanations on the Theory of Paintings of Tang Dynasty" that "The image of landscapes, the momentum coexist with each other (Explanation: The charm and form of landscape painting complement each other)", "Not the landscape having this momentum, but the image of the landscape reflected in my heart which move with the movement of the heart, so it is said that the spirit and form coexist with each other." (Wei, 2007). It is this common sense that maps the landscape schema in the hearts of human beings, and thus arouses their perception of nature.

The source of the physical image refers to the ins and outs thereof. Only by observing the details of the things, and then the painting can get the truth of creature. People in the Song Dynasty believed that knowledge is acquired through investigating things to the utmost, and its nature should be explored by understanding the principles of things. "Clarifying the source of physical image" actually inspired the concept of "Shang Li (Advocating rationality)" in paintings of the Song Dynasty. It is also the beginning of our research on the interpretation of art works from the level of the schema of Chinese classical landscape paintings.

Generally speaking, Jing Hao’s "source of physical image" is actually a reconstruction of the "common sense" of the nature that must be grasped in the space theory and creation of Chinese classical landscape painting, that is, an interpretation of the Chinese landscape painting pattern. The "source of physical image" should be understood as the essential existence of the original, inherent, natural, but also interdependent development of everything according to its own internal laws.

We can summarise the visual principles of this idea of pursuing ‘the source of objects and images’ in three main points (Accolla, A., & Jiang, J., 2019):
1. The importance of orientation The relationship between distance, direction, and position is constant and objective, regardless of the subject’s position.
2. The importance of the original proportion As advocated in the Yi Jing, the integration of men into Nature should not affect or interfere.
3. The natural state of objects and, therefore, respect the original proportions of the world.
4. The understanding of visual laws The Yi Jing also expresses that when the objective conditions of the objective world change, people’s perception remain unaltered to a certain extent, since there is a tendency to perceive familiar objects as unaltered in shape, size, colour, brightness and so on, despite the stimuli changes may involve, i.e. the principle of perceptual constancy.

4.3 The Organizational Features of the Space Art Elements of Landscape Painting under the Influence of "Source of Physical Image"

Through the exploration of "guan", the inherent "schema" is gradually abandoned, and this philosophical proposition, which has the characteristics of traditional Chinese cultural thinking and the common characteristics of modernity and human visual perception, is translated into the concept and method of visual space that can be used and understood by modern design.

1. Lines - the Carrier of Art Life

In the landscape paintings after the Song Dynasty in China and the history of modern western art, the liberation and expression of lines occupied an important position. Most of the landscape paintings in the Song Dynasty were painted on scrolls, with more smudges and strong naturalism. In the Yuan Dynasty, artistic elements, such as lines, began to play a key role in painting expressions as pure art forms separated from natural objects and images. How did lines in landscape painting represent space-time? How were art elements such as points, lines and planes used in the expression of physical images? Through analysis, we find that in the plot of Huang Gongwang's Dwelling in the Fuchun Mountains(Figure 1-1), the painting dominated by line expressions:

As a carrier of natural objects and images and space-time, in the composition of mountains in this painting, it did not emphasize the quantitative change to qualitative change of artistic elements, such as points to form lines, or lines to form planes, but highlighted the expressive force of lines as an art element, and the relationship between various elements was dominated by the expressiveness of the lines.

The slight intervention of dots enhances the richness and naturalness of line transition. The combination of lines is a metaphor for the generation of planes. There is no very close interweaving between lines, but there are spaces. The relationship of "Being and Not-being
grow out of one another" between lines, and the wet and dry shades of lines that are achieved through brush and ink, continuously promotes the continuous extension of planes (Figure 1-3). However, there is no line arrangement similar to that in western sketches, that is, the mechanical superposition and intersection of lines to produce planes which are often used to express a relatively fixed momentary image, but are difficult to achieve extension in space and time.

Driven by these two kinds of relationships, the kinetic energy of visual shift and relationship change is generated, which organically promotes the extension of time and space. This relationship is particularly obvious in comparison with the works of Chinese contemporary artist Zhou Jie(Figure 1-2). For the same motif, the tranquil landscapes, Huang Gongwang and Zhou Jie adopted very different treatment methods. Zhou Jie used long scroll painting composition, and highlighted the art element of lines, but the way of expression was deeply influenced by western painting consciousness(Figure 1-4), the lines were interwoven to express volume (space), hence the performance of the lines themselves depended on the generation of the volume image, making it difficult for the lines to be independent as an art element, and the landscapes they constructed was a three-dimensional miniature model, the space was confined in a quiet atmosphere and couldn’t be extended freely, nor did it have the mental conception produced by the Gestalt completion effect.

Figure 1. (1), (3) Huang gongwang 黄公望(1269 －1354): Fu chun shan ju tu(富春山居图)，(3)，(4) Zhou Jie 周杰: Where Are We Heading To? No.9 (artplusshanghai.com).

2. Contour and Mass - Drawing Game

Cezanne used dark lines to outline the still life, making the still life look clear and solid, and the unique role of the contours began to show. "Cubism" inherited the tradition of Cezanne’s rational analysis of the structure of paintings, and tried to form a painterly space and physical structure through the decomposition and reconstruction of space and physical images to reduce the descriptive and expressive nature of the work, so as to organize a geometric structural beauty. In this process, a drawing language of "simultaneous vision" became the most important transformation of Cubism, which represented different visual images of the same object from various angles through the observation of multiple perspectives at different viewpoints. In essence, it is the deconstruction and analysis of objects (Figure 2-1).
Contours, as a sign of the transition of space, are essentially external lines to emphasize and distinguish between spaces and forms. In cubist paintings, contours are unfolded from a three-dimensional space and spread in a two-dimensional space. This is the key to realize the transition from a three-dimensional space to a two-dimensional space with characteristics of four-dimensional space-time. The role of contour is fully exerted.

In terms of the operating concept of space-time expression, cubism and Chinese landscape painting have a great degree of similarity in the composition method, but there is a problem for cubism in the expression of a four-dimensional space - the fragmentation of the image and the feeling of viewing (Figure 2-2), while Chinese landscape painting has a consistent sense of tranquility and nature without losing the narrative content. The key is that the two civilizations have different cultural origins, values and art languages (Figure 2-3, 2-6).

On this issue, Purism is against Cubism's eliminating the integrity of the objects by emphasizing the change of viewpoints, hoping to further abandon the overly complicated structural details and show geometric characteristics. Purist painting also deals with the image of things by means of superimposing side contours on orthographic projection. It inherits the multi-view observation method of cubism and superimposes two different viewpoints. This processing method, has the following two effects: on the one hand, the spatial depth of the picture is compressed, presenting the expressive characteristics of shallow space; on the other hand, because the contours of all objects are very clear and interdependent, the picture maintains a strict order. Purist painting finally combines the visual image in reality with the cubist observation method of multi-perspective and different viewpoints, thus creating a new "stereoscopic" "reality".

China has a complete system of solutions to the problem, of which the two important elements are the processing of contours and the use of masses (Figure 2-4, 2-5). In the Ming Dynasty, especially in the middle and late periods, the direction of art changed. The development of commerce and the civic life have enriched material civilization, so the scholar-officials did not suffer from the depression and lack of desire like those in the Yuan Dynasty; the interpersonal relationship and the relationship between man and nature also became increasingly prosperous and complicated, and the landscape painting art shifted from pure self-expression to a paradigm with more space-time experience and gamification, which required the landscape painters to have the ability to solve changing and diversified space-time. As a result, the potential of contours and masses was explored. As a single form, the mountain boundary is bound to have an end, and the perspective sense of "everything looks big in the near and small in the distance" generated by human visual perception is inevitable even in landscape paintings. In the picture below, we find that the high-altitude composition of paintings in the Song and Yuan Dynasties had been transformed into a image in depth with a space-time narration effect (Figure 2-8). For the specific composition of mountain paintings, the shape of the mountain body was no longer majestic and complete, the boundary turning points were shattered by fragmented combinations of rocks and stones or organic contours, so as to avoid the spatial isolation caused by human visual
perspective in all spatial nodes. In this way, the extension of the space was maintained and it was also in line with the practical experience of people traveling in the mountains (Figure 2-7).


3. Geometry - Gestalt Completion

The overall style of Chinese painting presents a natural, casual and organic artistic language. Its object image has an internal structure with a very strong constitution law, which is covered by the rich and natural changes of artistic elements however. Although geometry exists, it does not attach importance to the shaping of the volume sense of mountains, but creates a solid and stable sense of rhythm of two-dimensional pictures, which also results in the planarized and profound space of Chinese painting, providing an expression different from the traditional western landscape painting. This is actually the way Cubism wants to explore. In Chinese landscape painting, the Gestalt method is generally used to complete the viewer’s psycho visual wander, thereby abandoning the volume and the sense of existence while shaping the image of mountains.

And this also creates another opportunity, because the purpose of shaping the physical image is no longer to produce a visual perception of the sense of light, dark and volume, however it still has to show the change of the image of the mountain body, therefore the focus of each side of the mountain body does not lies in its shadow relationship different from the other sides, but the change in space implied by the artistic elements. This kind of implication of image transmission can be conveyed to the cultivated audience by arousing the schema in their mind. Images can be extended in infinite space and time, and with the unique material carriers of Chinese landscape painting, such as long scroll painting, the
audience can experience a sensory journey of mountains and rivers as if traveling there in person.

5. Paraphrases in the Visual Image Design of the College of Art and Media, Tongji University

The logo design of the College of Art and Media is composed of seven graphics that gradually change from circular to triangular. Each graphic is like a spot of light with multiple colors superimposed to form a white border on the inside and a colored outline on the outside. Its combination form is flexible, and the seven graphics can be freely combined and transformed to form a logo with a sense of movement that represents the basic order and law in art (Figure 3-1). The image poster of the A & M College was constructed by using different superposition methods in the AI software. This poster is a metaphor for the internal spatial relationship of the College, the spatial journey of the College was transformed and refined in accordance with the research results of traditional landscape painting (Figure 3-2,3-3). Combining with theoretical research on traditional Chinese garden and the practical wayfinding system design in the next step, the VI system design of A&M college with wayfinding system design had been merged into one, which created a holistic and inclusive environment for the visiting teachers and students. While visiting the School of Media, they participated immersivity in the narrative of the college space, thereby a deeper impression of the college was created.
6. Conclusion

Human beings have tried to find the truths and mechanisms behind the cosmic space-time in the endless phenomena since ancient time, thus, different forms of carriers had been created to find and express the position of human beings. Visual perception, as the most
important sense, becomes one of the crucial parts of human creativity. However, vision is also the deepest sense that obscures us. China and the West have formed different visual and expressive systems during the past historical development independently, which continue to affect the development of their own cultures profoundly and subtly. However, in the past three years of research, what impressed me most is that human beings have more in common than what we show. The Chinese proverb says: tread different paths that lead to the same destination (Shu tu tong gui 殊途同归), As human beings, our destiny is the same. Multicultural sustainable development and design innovation under its influence will be the source to reduce human ambiguity and to strengthen consensus. This has to be a work in progress which will never end and keep evolving.

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Acknowledgements:

I am very grateful to Professor Avril Accolla from Design & Innovation college, Tongji University, China, for her careful guidance. The subsequent research uses her practical project at A&M College as the carrier. We have sparked a spark on the common goal at the first meeting. She is full of vitality and enthusiasm for building the bridge between Chinese and Western cultures. All can get the motivation and source of inspiration for design research from her passion.

Thanks for the sponsorship and support from CSC (China Scholarship Council).
The Interplay between Ethics and Aesthetics in Intelligent Systems-Users Interaction

Gabriele Barzilai

Abstract | In this paper, I address the interplay between ethics and aesthetics, in the context of everyday interaction with smart systems. This study is the result of a year’s time development of my PhD research, whose general aim is to understand how people’s beliefs and behaviours come to be shaped by the aesthetic experience with smart things. The expected outcome is a set of design strategies to integrate moral reasoning in the framework of design for behaviour change, relying on aesthetics in interaction. Preliminary results are presented, based on a literature review in the area of aesthetics of interaction. Although basic, these findings are helpful for they suggest that ethics and aesthetics in users-smart systems interaction are interdependent. This insight holds promise for the development of an aesthetics of moral reasoning, in the context of users-smart systems interaction. A research-through-design approach will be adopted in the remaining two years, with the aim of testing assumptions by means of working prototypes.

KEYWORDS | AESTHETICS OF INTERACTION, ETHICAL CHANGE, INTELLIGENT SYSTEMS, BEHAVIOUR CHANGE, RESEARCH-THROUGH-DESIGN
1. Introduction

As technology advances, the production of design mutates, and so does the experience of users (Lessiter, et al., 2014). In this respect, the advent of artificial intelligence and its widespread use in all sorts of application has led to a radical change in the way users interact with products, prompting researchers to focus on a new form of aesthetic experience (i.e., aesthetics of interaction) (Iannilli, 2015; Russo & Ferrara, 2017).

What makes this type of experience unprecedented is the responsiveness of the artefacts, namely, the dynamic change of the features of the artefacts in response to the user’s actions. The result is a complex relationship developing between users and systems, where meanings, emotions and actions bundle in a dense network (Jacucci, et al., 2014).

In the body of this network, ethics comes to acquire a prominent role (Latour & Venn, 2002; Lukes, 2010). Indeed, moral values crystallise into artefacts and ethical judgement actively stands behind the user’s decision-making process (Verbeek, 2008). The dynamic character of such a relationship between users and products engenders a form of aesthetics that gives the user’s ethical reflection a practical dimension of application. When contextualised, thus, ethics proves tightly bound to aesthetics (Saito, 2007). An exemplar case in research is that of the Kantian and Romanticist vending machines (Ross, et al., 2009), where the aesthetics of the interaction was deliberately designed to elicit good behaviour in users according to specific ethical values. The Kantian vending machine, for instance, adopts a rationalist perspective, representing candies through a description of their constituent parts (proteins, sugar level, etc.). While interacting, users are reminded of their body mass index and finally asked whether they really want to proceed with the purchase. In this way, the type of aesthetics epitomises a deontic proposition, that is, a statement concerning what one should and should not do.

These studies show how ethics in smart system-user interaction takes shape, literally, influencing people’s behaviour. However, in the large body of research on aesthetics of/in interaction, ethics and its connection with aesthetics is hardly ever addressed and never in depth. This despite the endeavours to broaden the notion of aesthetic experience by including the psychological dimension of the interaction between smart systems and users (e.g., (Hassenzahl, et al., 2012)). Strikingly, the same applies to areas most directly concerned with changing people’s behaviour through design (see e.g., (Redström, 2006; Lilley, 2009; Tromp, et al., 2011)).

Overall, a crucial aspect of aesthetics of/in interaction remains under-explored: its power to change users’ behaviour by embodying ethical issues. In particular, what misses is a specific aesthetic language designed for intelligent systems, which aims at fostering users’ behaviour change by stirring moral reasoning. In the context of design for sustainability, this is a great lack as moral reasoning, when conscious, can strongly affect daily behaviour by pushing people to bring into question their own individual interests in the face of collective ones.
As part of a PhD research project, this paper proposes an expansion of the notion of change-through-interaction, which includes moral reasoning as an integral part of the decision-making process at the base of users’ change in behaviour. The main result of a year’s time development of the project is a preliminary understanding of the interplay between ethics and aesthetics in the users’ everyday interaction with smart products. This knowledge is a starting point for the development of an aesthetics of moral reasoning able to foster the users’ ability to change actively their beliefs and behaviours (see 4.1).

2. Literature review

2.1 Scope of the enquiry

The relationship between ethics and aesthetics in the interaction with intelligent systems is a complex matter, requiring a multidisciplinary approach to be understood. Thus, the areas of knowledge involved are multifarious, often outside the domain of design. In my research project, I am focusing on three main areas, which can be regarded as fundamental to gain a first understanding of the mechanisms underlying the relationship under investigation: aesthetics of/in interaction; user’s affective response; ethical awareness in interaction. In this paper, I focus on aesthetics of/in interaction, providing a brief account of the main approaches and theories developed in this area.

2.2 Aesthetics of/in interaction

Aesthetic (as a quality of) experience

Since the notion of user experience design has gained popularity, the aesthetics of products and systems has come to be conceived as part of the relationship between users and things (Hassenzahl, 2010, p. 21). Aesthetics, in this view, is not a property of objects nor is limited to their appearance. Rather, it is a dimension of the quality of the user experience, i.e., the sense of beauty springing from the subjective appreciation of things through perception.

The long-standing idea that aesthetics resides within the things being judged comes from hundreds of years of aesthetic theory searching for universal principles that allow for generalisation (Krippendorf, 2005). In this perspective, the vocabularies and guiding principles that theorists have developed focus on artefacts, neglecting the role of the perceivers. This conception, however, has been challenged over recent years by several studies claiming that aesthetics cannot be treated separately from the individual who is judging. In this light, aesthetics is deemed as context dependent as well as culturally rooted (i.e., non-universal).

In today’s design research, aesthetics is conceived as a quality of the user experience, directly related to the user’s affective state (e.g., see (Desmet & Hekkert, 2007)).
approach brings the attention back to people, namely, it focuses on the empirical phenomena pertaining to the appreciation of artefacts through senses.

**Interaction: where the dynamic of aesthetics unfolds**

The type of experience that users have when they interact with products has changed significantly over the last few years, due to the massive spread of artificial intelligence. Indeed, the dynamic change of the features of the artefacts in response to the actions of users gives rise to a new form of aesthetic experience. For this reason, researchers in the fields of HCI and interaction design have started taking an interest in the *relationship* (i.e., interaction) between users and intelligent things, where the dynamic of the aesthetic experience unfolds. The understanding of aesthetics in HCI and related fields, however, is anything but shared. In this respect, Hassenzahl (2008) identifies three main approaches to the study of aesthetics: *normative; experiential; judgmental*. Such a distinction is part of a larger attempt to reduce the inconsistencies emerging from different studies on the subject. Despite this attempt, the recent studies on aesthetics of interaction often combine the three approaches. Moreover, researchers adopt different epistemological perspectives on human experience, making it difficult to reach a consensus. A brief account of the different views on aesthetics of interaction follows.

**Phenomenological perspective**

In their study on the aesthetics of “computational things”, Redström and Hallnäss (2002) developed the concept of “expressiveness”, focusing on the way things appear to users. The authors draw a fundamental distinction between the notions of *use* and that of *presence*. The latter refers to the “existential definition” of things, namely the way we accept things in our *lifeworld*, giving a place and a meaning to them. The researchers position aesthetics in the relationship between intelligent systems and users, applying a phenomenological perspective to its understanding. In this view, appearance acquires importance to the extent that it embodies the identity values that users project onto it as a consequence of an inner conceptualisation. Although the authors emphasise the “existential definition” of things – their *presence* in the inner life of users – aesthetics is viewed as part of an experiential dynamic, which involves both users and things.

**Pragmatist perspective**

A pragmatist viewpoint on aesthetics, based on Dewey’s understanding of experience (Dewey, 1980), has been quite successful among researchers in the field of HCI and interaction design. In particular, Shusterman’s concept of *pragmatist aesthetics* (Shusterman, 1992) has informed various strands of research on what is termed *aesthetics of interaction*. This approach affirms the central role of the socio-cultural context in the human aesthetic experience as well as its instrumental character in everyday life. Moreover, with the concept of *somaesthetics* (Shusterman, 1999), the body is considered an indispensable
part of the aesthetic experience. This view refuses the Cartesian separation between mind and body, claiming an ontological unity between the two. Although popular, this approach has been adopted (and adapted) differently by various groups of researchers.

Peterson, et al., (2004) developed a framework for the design of interactive systems, promoting the concept of aesthetics of use as an alternative to that of aesthetics of appearance. In this respect, they are in line with Djadiningrat, et al.’s holistic conception of design for interaction (2002), which emphasises the role of bodily experience, user’s motor-skills and action-related affordances. Following Shusterman, they strongly criticise the analytical conception of aesthetics, pointing out that merely promoting visual appearance proves to be a highly reductive and simplistic view on aesthetics, given the complexity of human experience – which includes feelings, emotions, actions, and movement.

Drawing on the work of Peterson, et al., Ross and Wensveen (2010) developed their own framework, with the aim of establishing a new design approach called “aesthetic interaction through aesthetic interaction”. This approach builds upon the idea that the design of interaction with smart systems is too complex to be addressed by means of non-interactive media (see (Frens, 2006)). Such a shift from theory to practice is carried out through the design of a lamp, which is intended to generate a specific aesthetic interaction by eliciting human values such as social power and helpfulness. In this respect, the researchers pursue a method to integrate ethical values in the design of (smart) product experience, connecting ethics and aesthetics.

A different interpretation of Pragmatist aesthetics is offered by Lim, et al. (2007), who look at aesthetics of interaction through the lens of interaction gestalt, i.e., the abstract qualities of the interaction emerging from the user experience. From a theoretical point of view, interaction is seen as an abstract entity situated between the user experience and the attributes of the artefact. This conceptual separation, it is argued, allows designers to better examine the manifestation of the interaction gestalt, turning aside from a focus on the intrinsic properties of the artefact. In this respect, Lim, et al. are interested in the immediate level of the interactive experience, i.e., the “tight coupling between human sensory and materials”, which is thought to drive experience itself. This moves away from the idea of experience as something unfolding over time within a given socio-cultural and environmental context. While embracing the concept of somaesthetics, Lim, et al. focus on the abstract and intangible aspects of aesthetic experience, leaving aside the physical dimension of interaction.

Building upon Shusterman and Petersen, et al., Löwgren (2009) offers a further theoretical contribution to the understanding of interaction aesthetics. Embracing a pragmatist perspective, he seeks an “inclusive” notion of aesthetics, which combines emotions, meaning and perception. Moreover, he highlights the distinction between aesthetic judgement and “factual reports on sensory impressions” (e.g., feeling cold or warm, seeing blue or green). Overall, Löwgren stresses the fact that the qualitative assessment of aesthetic experience does not necessarily reflect the degree of allure that such experience
elicits. As an example, horror films and similar experiences seem to be appealing to people even though they elicit negative feelings. Löwgren proposes four conceptual categories that describe the aesthetic qualities of interaction: \textit{pliability; rhythm; dramaturgical structure; fluency}.

\textbf{Critical perspective}

Marching to a different drummer, Bardzell (2009) advocates the combination of two rather different philosophical traditions – critical theory and theory of aesthetics – to strengthen and advance designerly speculation in the field of HCI. The friction between the analytic and the continental philosophy reflects the tension currently alive between the scientific and the cultural dimensions of HCI. Indeed, design has a transformative vocation, which makes criticism and speculation two fundamental requirements. On the other hand, the need to understand the phenomena pertaining to user-system interaction requires the empirical approach of science. Hence, Bardzell views the merger of science and critical theory an opportunity for the field of HCI to advance in theory development. In this regard, he strongly criticises common-sense based definitions of aesthetics that proliferate in interaction design research, soliciting an aware and rigorous use of the concepts elaborated in this long-standing philosophical tradition. As a contribution to the field, Bardzell (p.2365) identifies and discusses four strategic roles that aesthetics and critical theory can play in HCI research:

1. “\textit{Informing the existing design process}”;
2. “\textit{Resist[ing] or innovate[ing] on the design process}”;
3. “\textit{Develop[ing] theory}”;
4. “\textit{Expos[ing] the consequences of design}”.

\section*{3. Method}

\subsection*{3.1 Epistemology}

In my research project, I adopt what may be regarded as a \textit{constructionist} perspective on how knowledge is produced (Darlaston-Jones, 2007). Indeed, I deem reality as \textit{shaped} through socio-technical relationships, which are situated in specific cultural, historical, economic, and political contexts. In these contexts, individuals hold and develop their own interpretation of reality through the interaction with both the environment (natural and designed) and other individuals. In the realm of scientific enquiry, I believe that knowledge is a construction that researchers articulate into a rhetoric. This rhetoric uses a specific language and semantics, with the aim of claiming the trustworthiness of what is regarded as knowledge.
3.2 Approach to design research

As a methodology, I refer to *Constructive Design Research* (CDR) (Koskinen, et al., 2013), an approach similar to *Research through Design* (RtD) (Giaccardi & Stappers, 2017; Zimmerman, et al., 2007). Compared to RtD, this approach offers a wider interpretation of the term *design*, meant as a (research) practice where methods and theories borrowed from other disciplines can be combined and adapted in a constructive way, according to both the aim and the context of the enquiry.

In the preliminary phase of the project, I addressed my research question through a classical literature review. This phase was preparatory, however, to an empirical study based on a research-through-design approach. In this respect, my process started with “thinking analysing abstracting”, to use a definition from the *Reflective Transformative Design* model (Hummels & Frens, 2011).

3.3 Methods of enquiry

In the first stage of my research process, I addressed the research question by reviewing relevant literature in the areas of *aesthetics of interaction*, *user’s affective response*, and *ethical awareness in interaction*. In this paper, I give an account of the studies in the area of *aesthetics of interaction*, focusing on the understanding of the interplay between ethics and aesthetics in users-smart systems interaction. In this respect, my enquiry relied on a qualitative analysis of specialised academic literature on the subject.

In the remaining two years of my PhD project, I aim to conduct empirical research in the field, adopting a RtD-based approach (i.e., CDR, see 3.2). This entails the use of a diversity of methods for data collection and analysis, ranging from ethnographic to action research-based techniques. To specify, as far as the data collection is concerned, I expect to adopt the following methods: *cultural probes* (Gaver, et al., 1999); *prototyping* (Martin & Hanington, 2012, pp. 138-139); *diaries-questionnaires-interviews* (Goodman, et al., 2012, pp. 243-272). For data analysis, I expect to adopt the following methods: *grounded theory* (Muller & Kogan, 2010); *artefact analysis* (Martin & Hanington, 2012, pp. 14-15). As mentioned in 3.2, these methods will be adapted in the context of an RtD process.

The enquiry will be carried out mainly in the home environment, although the ubiquity of smart technology – which I address in my research – makes it difficult to confine the research to a specific context. As far as the recruitment of participants is concerned, I expect to adopt a *purposeful sampling* strategy (Rapley, 2014).
4. Results

4.1 Preliminary findings

The interplay between ethics and aesthetics in user-smart systems interaction

The findings here presented constitute a basic understanding of the complex relationship between ethics and aesthetics in the interaction with smart systems. Three research areas have been addressed: aesthetics of interaction; user’s affective response; ethical awareness in interaction. The theory in the area of aesthetics of interaction informs much of my first understanding of the relationship under examination.

The following points summarise my basic understanding of this relationship.

1. Relationship of interdependence

All technological artefacts mediate our relationship with the environment, affecting our decision-making, interpretations, and actions. As mediators, they hold the ability to direct (i.e., to change) both our understanding and behaviours as users (Verbeek, 2008).

According to Verbeek (2008), morality crystallises into artefacts, following a twofold process: “pragmatic” (related to action) and “hermeneutic” (related to interpretation). Both forms of mediation happen in the context of human experience, which is characterized by cognitive, perceptual, and emotional processes through which people attribute meaning to their own possibilities of action and the related consequences. In these processes lies much of what is termed aesthetic experience. Indeed, aesthetics consists of a qualitative (cognitive) appreciation of the features of artefacts through senses (perception and emotions).

Therefore, aesthetic experience is an essential part of the mediation to which technological artefacts give rise, i.e., it contributes to the meaning-making process originated in this mediation.

As put by Saito (2007), when moral judgements are based on the “sensuous features of the objects” they can be linked to aesthetics and regarded as “moral-aesthetic judgements” (p. 210). In this view, any judgements concerning the moral character of designed objects qualify also as aesthetic in so far as they are based on “first-hand experience” (p.211).

Moreover, there are cases in which aesthetic judgements are dictated by moral beliefs in the first place (p.215). This is the case of normative values of social and cultural type, which influence (i.e., regulate) the criteria for the appreciation of beauty. Although Saito focuses on architectural design, this interplay between ethics and aesthetics can be extended reasonably to all designed artefacts.

In all cases, the socio-cultural context – moral values included – plays a crucial role in determining the type of aesthetic experience that users have when interacting with designed artefacts. At the same time, the aesthetic experience drives moral decisions by characterising phenomenologically the mediation between people and artefacts.
In brief, ethics and aesthetics seem to be *interdependent*, in the context of the interaction between users and designed artefacts. Indulging in a simplification, aesthetics contributes to shaping moral values, as well as moral values influence the aesthetic experience. Certainly, the way this happens is anything but linear, nor it can be reduced to a simple principle of causality. Rather, the complexity of this interdependence entails multiple forms, i.e., different roles played by ethics and aesthetics in their interplay, depending on contextual factors (both at the macro and micro levels).

2. **Higher space for communication**

Intelligent artefacts give rise to a peculiar type of user experience, given their ability to respond dynamically to the users’ input. Besides performing complex tasks, sensors and smart materials allow for multi-layered, highly articulate forms of communication between users and systems. Such communication can even happen at a purely sensory level (i.e., non-linguistic) without diminishing its elaborateness. The peculiarity of this type of artefacts amplifies the range of possibilities in terms of depth of communication and intensity of the experience, which makes the previously mentioned *interdependence* between ethics and aesthetics of a different kind. Indeed, the type of aesthetic experience that users have with these artefacts is phenomenologically different from – possibly richer than – that generated by ordinary artefacts (i.e., non-interactive). Likewise, the moral reasoning that such a type of aesthetic experience elicits is conceivably more elaborate, allowing for complex propositions to be articulated. In other words, the greater space for communication (whether sensory- or linguistic-based) offered by intelligent artefacts paves the way for a type of relationship between ethics and aesthetics that is multivariate and can be deeper than in the case of non-interactive artefacts.

In brief, when users interact with intelligent artefacts, the interdependence between ethics and aesthetics can have many forms and be highly elaborate, given the higher space for communication that such artefacts provide compared to non-interactive artefacts. The enhancement, in this respect, is both quantitative and qualitative. This twofold enrichment does have implications for the kind of ethical issues that can be raised through (or embedded into) the aesthetics of the interaction with intelligent artefacts. To specify, the logical chain of links that some elaborate moral issues require in terms of reasoning could be addressed by means of dedicated intelligent artefacts, whereby the space of communication is high enough to permit such a conceptual leap.

4.2 Expected results

**Short-term**

The main result expected in the short run is an advancement in my basic understanding of the interplay between ethics and aesthetics in users-smart systems interaction. By completing the literature review – i.e., addressing the other two areas of research previously mentioned, *user’s affective response* and *ethical awareness in interaction* – I expect to gain
an essential knowledge regarding the relationship under consideration. This knowledge, I anticipate, will allow me to plan a series of experiments to be carried out in the next two years (see Long-term).

Essentially, by accomplishing a thorough literature review in the two remaining research areas, I expect to be able to understand what forms the interdependence between ethics and aesthetics can take. After having identified interdependence as a significant attribute of the relationship between the two, I need to examine both the mechanisms behind moral reasoning and how the affective response of users influences their aesthetic experience.

Long-term

The results I expect to attain in the long run consist of theoretical constructs (e.g., frameworks) that can be used by other researchers in the future to advance in the enquiry pertaining to the relationship between aesthetics of interaction and ethics, in the context of design for behaviour change. It is worth to clarify that the results I aim to achieve are both of propositional (i.e., pragmatic or instrumental) and investigative (i.e., hermeneutic or interpretative) type. There is no contradiction between the two as empirical research in design does have such a dual spirit, as it were.

To achieve these results, I will conduct a series of field experiments, investigating the interplay between ethics and aesthetics in the users’ everyday interaction with smart products (see 3.3).

5. Discussion

5.1 Towards an aesthetics of moral reasoning

The preliminary findings of my research suggest that ethics and aesthetics in users-smart systems interaction are interdependent. This paves the way for a deeper enquiry into the forms that such an interdependence can take and, more importantly, into the impact that these forms have on people's beliefs and behaviours, in the context of everyday practices. Indeed, the general aim of my research is that of integrating moral reasoning – and its interplay with aesthetics – in the framework of design for behaviour change. The reason is that ethics informs (in combination with aesthetics) the decision-making process at the base of users’ change in both beliefs and behaviour. As a long-term horizon for my own PhD research project, I see the development of an aesthetics of moral reasoning, in the domain of design for users-smart systems interaction.
6. Conclusions

In this paper, I presented the preliminary results achieved in my first year of doctoral research. In my project, I am addressing the problem of how aesthetics in the interaction between smart systems and users embodies ethical constructs. In particular, I aim to understand how the interplay between ethics and aesthetics (of interaction) contributes to eliciting a type of moral reasoning in users such as to influence their beliefs and behaviours in everyday life.

The results illustrated are incipient, mainly based on a critical review of relevant studies conducted in the area of aesthetics of interaction. Although preliminary, these findings shed light on the relationship between ethics and aesthetics in the interaction with smart systems, suggesting that they are interdependent. The various forms that such an interdependence can take determine depth and breadth of the impact on people’s beliefs and behaviours, in the context of everyday practices.

At this stage of the research, the findings seem to indicate that moral reasoning can be integrated in the framework of design for behaviour change by working on the way ethical constructs are embodied in aesthetics (i.e., aesthetics in interaction). A deeper investigation is needed to understand how to design for an aesthetics of moral reasoning.

References


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**Gabriele Barzilai** is PhD candidate in Design at Politecnico di Milano, working on the interplay between ethics and aesthetics of smart interactive systems. His study investigates how the sensory language of interactive systems can be designed to foster user’s critical faculty.
The pluralistic aesthetics of nowadays design

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Abstract | The paper aims to investigate some emerging phenomena of nowadays design culture, in order to find interpretative keys suitable to highlights new aesthetic dimensions of the project. The contribution results as a part of a reconnaissance in the field of international design, with reference to projects of the last fifteen years. Since the 1970s, a general crisis of Modernity, involves at the same time the founding paradigms of science and art. In this context the culture of design is nimbly able to take new paths beyond the International Style: designers responded constructively, realizing new generations of objects. The contribution proposes some cues for an interpretation of the post-industrial scenario, in order to suggest a set of key-words, emblematic of emerging aesthetics which liven up the latest design; aesthetics that result multiform and sometimes very distant from each other.

KEYWORDS | CONTEMPORARY DESIGN, MODERN SCIENCE CRISIS, NEW ART PARADIGMS, POST-INDUSTRIAL AESTHETICS
1. Paradigms of art and design at the turn point

The universal dissemination of neutral, grey, cold products has, with the International Style, was an expression of the desire to make an encoded quality accessible to everyone. The vaster attempt at conciliating industry and culture, made with great civil and spiritual strength by the School of Ulm, waivers when faced with the protest that in 1968 involves all society and the project too, and that coincides with the year the school closed. Rationalism, as a method tending towards homologation in the name of the scientific foundation of the project, excluded – at least in theory – a true aesthetic pluralism, in the name of a tendency towards formal purity.

The “dream of a world of goods ordered in a rational manner” as Stanislaus von Moos called it, fails to take hold in the new-born post-industrial society that hybrids different cultures, languages, styles and is therefore interested in new qualities of objects. In post-industrial age aesthetic paradigms fatally multiply; design hybridizes with art, confronts the new languages of the metropolis, the imaginary of goods, the new scientific imaginary linked to the advent of electronics, telematics and digital. The escalation of the environmental crisis also drives design towards eco-sustainable design and also towards Neo-organicism; the design culture necessarily interfaces in many ways with nature, also as an aesthetic phenomenon.

Two main conditions influence the transition from the modern to the post-industrial design, concerning deep changes in the paradigms of technology and art:

- the crisis of modern technical-science and the ecological matter undermine the roots of the project and result directly in the questioning a vision of the object as merely optimization;
- the modernist concept of art comes into discussion, with its idea of the existence of a mainly representative current for each period in history; instead the acceptance of a multitude of methods and conceptions takes hold. (Danto, 2008).

Although affected by this double crisis, that regards its deeper matrix, the culture of design comes out of it strengthened. In the post-industrial era design uses its ambiguity amongst the worlds of art and technology as an opportunity; it finds inspiration and new energies in all areas of science, as well as facing up open-mindedly to the world of art.

Danto claims that the end of Modernity coincides with the impossibility of art finding a single direction. Starting from the 1970s, the succession of art phenomena over time would no longer be interpreted as the obsolescence of one style through a subsequent form of art, considered able to fully represent the present era. “It is now a widespread believe that the atmosphere of the last quarter of a century, characterised by incredible productivity and experimentation in the visual arts but lacking a single narrative approach that can exclude competitor ones, has become the norm”. (Danto, 2008, p. 13)
What Danto observed in the field of art is clearly reflected in what is happening almost simultaneously in the field of design culture. Starting from the 1970s, design increasingly takes on more pluralistic aesthetic.

Strange families of objects claim their presence for the first time so strongly, with the exhibition “Italy: The New domestic Landscape”, in 1972 at the MoMa of New York. It’s the realistic response to the crisis of a monologic aesthetics, a different sensitivity – in this case pervaded by ironic vein of Pop Art.

Starting as Avant-Gardes, Archizoom and Superstudio, UFO group, Ettore Sottsass jr, Ugo La Pietra, 9999, Heinz Frank, Coop Himmelb(l)au, Max Peintner, Haus-Rucker-Co, Raymund Abraham, are just some of those who contributed to launch a new front of projects, at first mainly provocatively; but they suggest a real, proper alternative to the black and white of International Style, unleashing a wave of aesthetic freedom that has never been exhausted to date. The objects exhausted their role as mirrors of an abstract Rationalism: people begin again to recognise itself in the warm imperfection and in the variable characters of the new artificial world.

2. Notes on the metamorphosis of object in post-industrial age

In the 20th century art gives us, as Werner Haftmann claims, the prehistory of our contemporary relationship with things. He identifies a series of approaches on the last century’s painting scene that constitutes the object of values and references (Haftmann, 1972, p. 12-13)

- The power of the archaic object, the sensitivity for the magical-creatural, animistic element, the value of fetish (from Rousseau to Picasso);
- The solemnity and essential dignity of the common, forgotten things, little objects (e.g. De Chirico, Savinio, Morandi);
- The mythology of the machine or most banal device or technical object. (e.g. Léger, Duchamp);
- The mythology of lightness, fastness; the aesthetic of the energy and fluxes in technological world (Balla, Boccioni)
- The poetic potential of the refusal, the advance, the unpleasant (e.g. Schwitters, Moholy-Nagy);
- The object of dreamlike value (e.g. Dali, Ernst, Magritte).

In post-industrial age designers take a fresh look at that part of Modernity, full of unresolved problem areas, visionary, full of creative energy, which could be fully expressed in the painting and figurative arts of the 20th century. At the same time, they demonstrate the capacity to act as a sounding board for social and personal needs and desires, to crossing new urban languages, to interact with the world of goods and that of fashion. Product design, services design, urban design, materials design, web design, interaction design,
experience design, bio design, dressing design, textile design... since the 1970s to nowadays, the discipline has progressively opened to the most varied languages, technological worlds, interdisciplinary contaminations. Crossing into so various cultural and artistic contexts post-industrial design generates objects which sometimes have an indecipherable character – and for this reason attractive – certainly difficult to catalogue according to the old aesthetic parameters.

In this context so rich, but also apparently chaotic two main guide-concepts influenced the metamorphosis of the object in the post-industrial age: the **biological** and the **immaterial**; an age defined by Michel Serres as “soft” because it can overcome the harshness of the industrial age. The two fundamental sciences of poster-modernity are identified by Serres, not by chance, with the sciences of living and telematics (Serres, 2016, p. 238).

The **biological** responds to the more general accusation brought against the traditional object: things are deaf and immobile, whilst living things are versatile, sensitive and changing. The **immaterial** regards the possibility of overcoming the solid nature of the object, in favour of a more ethereal, interactive object. The biological therefore looks to the transformation of the inorganic into the organic, to the metabolism of the object as a crucial point of view; the immaterial investigated the new artificial objects allowed by digital and electronic technology, that has redeemed the traditional things from its relational inertia. (La Rocca, 2017, pp. 68-70).

The biological and the immaterial have also acted as guide concepts by which to overcome that aridity of the object caused by its rapid emptying of symbolic, religious and magical values that took place with Rationalism (La Rocca, 2017, p. 83).

Based on this critical reconnaissance, our research has explored the international scenario of the nowadays design project, which reveals some influential categories, identified by some keyword. They help us to interpret the contemporary project as deviation from its most rigid modern matrix and, specifically in this case, to highlights new aesthetic trends. The article selects emblematic examples, by designers who are particularly active on the international scene in last years.

The nowadays design aesthetics includes not only various, but sometimes contrasting, declinations, even false affinities between phenomena of very different meaning. In the next paragraph we will analyse emerging aesthetic issues, linked to: the relationship with nature, to which the designer approaches by acquiring skills in biotechnology or, simply, for a symbolic and figurative inspiration; the two opposite poles of a deliberately modest object or a fetish-object, charged with symbolic energies and overflowing to excess; the relationship with materials and their free invention, within a direct laboratory practice by designers; a tendency towards dematerialization that stops at an impassable frontier: the inescapability of our body. So that aesthetics takes on its most literal value, as an exaltation of the five senses for a cognitive access to reality and its beauty.
3. Divergent aesthetics of the nature: living objects and bare nature

The living object of contemporary design can transcend two limits of the traditional object of Modernism, which is limited to being mechanical, rigid, unable to transform and evolve. The living is not an object generically inspired by nature, nor necessarily associated with eco-sustainability, but it tends to be concretely made of living elements; this implies a strong identity and aesthetic imprint.

As Blaise Cendras wrote, “life is efficiently, manifestly, formally space and time sublimed, merged, aromatised. It is honey”. Indeed the living in contemporary design is a key word that irresistibly draws in designers and without doubt the strongest declination of the biological.

In recent years, specific design researches move along the increasingly flexible boundary between the object and the living system. The attraction for the biological, of the avant-garde utopian aspiration (i.e. Metabolism, William Katawolos, Rudolph Doernach) today can take advantage of the continuous and fast new acquisitions of scientific research and biotechnology. Design conjugates in new forms chemical research, bioengineering, advanced materials, creating interesting short-circuits between science, technology and art.

New designer figures interact with interdisciplinary teams and several exhibitions investigated in last years these new frontiers. Among these, Design and The Elastic Mind, the exhibition organised by the New York MoMA in 2008; Biodesign. Nature, Science, Creativity, again at the MoMA in 2012; Synthetic: Art and Synthetic Biology, at the Natural History Museum of Vienna in 2011; Grow your Own, presented in 2014 at the Dublin Science Gallery.

Design takes on the governance of experiments, the purpose of which may be each time mainly artistic or technical. A great variety of researchs and projects emerges today, involving organisms on all scales, from plants to bacteria, algae, fungi or individual cells. Eric Klarenbeek e Maartje Dros with the project 3D Bakery, Sonja Bäumel with Bacteria Textile, Naja Ryde Ankarfeldt with Microbial Skin, Suzanne Lee with Biocouture, Aniela Hoitink with Mycotex mycelium textile dress work in this direction; they are all representative of an expansive design research that includes textiles for fashion, sustainable packaging, attempts at mutating dynamic graphics, as in the project Symbiosis by Lan van Abbema. A special design award "Bio art and design", was assigned in 2016 to the designer Angelique Spaninks for the project Fluid Matter. The Officina Corpuscoli’s researches, develops a new paradigm for the project: the slogan “growing design” identify the possibility of a diffuse industrial product, processed by the action of living organisms.
Among the aesthetic trends regarding the relationship design/nature, we can identify another key-word: **bare nature**. In this case the deterministic vision strictly connecting functionality/aesthetic, which Rationalism saw in the systems of nature, is completely out of play. The substance of the project is the natural element or event, such as the growth of a plant, the chemical reaction of a mineral, grass and earth, a common stone, all in their symbolic value.

We can rather refer this new kind of aesthetics of nature to the anti-deterministic vision that Roger Caillos observes in many phenomena: “Man is free, clumsy, sometimes perverse”. In the natural world, organic or inorganic, beauty is sometimes completely enigmatic and inexplicable. “Without knowing anything, thanks to an impenetrable metamorphosis, the lepidopteran draws gaudy wings from the indistinct mixture that fills the nymph. Man puts the risk of a deliberated, doubtful decision between himself and his work” (Caillois, 1998, p. 36)

Germano Celant comments on the movement of *Arte Povera*, which in the late 1960s conquered an important role on the international art scene. “The artist-alchemist organises living and plant things into magical facts, working to discover the real heart of things, to find them and exalt them. His work does not, however, look to use the simplest materials and
natural elements (copper, zinc, earth, water, rivers, lead, snow, fire, grass, air, stone, electricity, uranium, sky, weight, gravity, heat, growth, etc.) for a description or representation of nature; what interests him is instead the discovery, the presentation, the insurrection of the magical, wondrous value of the natural elements” (Celant, 1969, p. 54).

We can adapt these words to the defining, many years later, research, projects and exhibitions that underlie new critical visions of nature. Some significant examples of a bare nature design include Sayaka Yamamoto’s researches, as Little Wonders; Zanellato’s work, Affinità naturali; the research by Tomás Gabzdil; Francesco Faccin, with his Allevamento Domestico; Ferreol Babin, with the project Fusion Containers Drawing. The exhibition Post Fossil Excavating 21st Century, by Lidewij Edelkoort – featured for the first time in 2011 at the Design Museum Holon in Israel –, mixes freely fake palaeontological findings, the matter of the fossil, and the theme of primitivism.

Designers today show a great interest for the natural element as a fragment that can be drawn from without mediation, or for a manipulation of the material with the alchemy-type laboratory style. Dissonant interpretations of a relationship with nature, however rich in symbolism and made of hidden references to the mystery that is intrinsic to it.

Figure 2. Giorgia Zanellato, Affinità naturali, 2014.
4. Object with a mini-ego and fetish object

An object with a mini-ego expresses a design quality that has apparently withdrawn into a minor sphere, but many designers make their small gestures and discrete intervention into a form of poetry and aesthetics. A mini-ego object mainly refuses the arrogance of costly products, the object as a status symbol to flaunt.

As Maurizio Vitta observes, “the philosophical thought has contemplated the world of everyday experience with suspicion, keeping it at a respectful distance at all times. Being unable to deny it entirely, it has merely ignored it, at most very hastily noting its distant presence”. (Vitta, 2012, p. 182). But the world of everyday existence, of the object as minute being, in any case re-emerges

Already at the end of the 1970s, Félix Guattari was talking about a transformation of society based on a microscopic scale, a real molecular revolution (Guattari, 1977). Social utopia and revolutionary hope have made way for everyday micro-utopia, given that any overly direct critical position of society appeared to be in vain. In approaching the preparation of a design philosophy, Bruno Latour identifies an escape route from a muscular artificiality in the care and attention to detail, for a world of objects that instead contemplates material, morality and sustainability. (Latour, 2008)

In the book Sale fino, Nuovi sapori del design italiano, a design generation attentive to a minimalist object, apparently as modest as it is refined, is presented by Beppe Finessi. There are projects by Lorenzo Damiani, Paolo Ulian, Joe Velluto; but also Aroundesign, that with the simple cutlery Moscardino wins the XIX edition "Compasso d'Oro" Award. (Joe Velluto, 2005)

A panorama of the mini ego objects has significantly represented also in several exhibitions: ReDesign The Daily Products of the 21st Century, by Kenya Hara in 2000, commemorates the 100th anniversary of the Japanese company Takeo Co; The New Italian Design, presented by Silvana Annicchiarico and Andrea Branzi at the Triennale di Milano in 2007, that showed many projects in this line; Microfacts by Stefano Maffei in 2016 at the Milan Subalterno, a series of micro object by 14 Italian designers.

What is certain is that the objects are studied very closely indeed, not to force them into a sort of obsessive ergonomics or in the myth of the technical precision, but rather for a new attention to microsociology of the everyday, its imagination and gesture.
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Figure 3. Modoloco Design, La dignità del tassello, Microfacts 2016. Each wall plug is conceived according to a particular style, from modern to contemporary design.

Apparently opposed to the minimal object, we find another key-word, the fetish. It represents a reaction to the “soul-less” object of the Rationalism, to the long exclusion of the iconic-irrational, the anthropomorphic and the zoomorphic form the project.

Gillo Dorfles was one of the first, in the 1970s, to reintroduce the subject matter of the affective relationship with objects, connecting this to the expressive intensity and mythopoeic load of the pre-industrial object. In this context, he returns to the idea of the object-fetish as a reaction to the idea of the closure of the industrial product in the pure values of rationalism and as a new tendency towards the ritual and the symbolic. (Dorfles, 1988)

From his vast anthropological research, Claude Lévi-Strauss appears to also draw the following general consideration: fetishism is not a fogging of the “wild thought”, but rather it has an excess of meaning of which man can make the most to know the world. (Lévi-Strauss, 2010) Is it unthinkable for western, civilised man to imagine a quid of life in the inanimate object? As Marc Augé points out, “what is perhaps more unthinkable is pure material, mineral homogeneity: it has to be animated if we are to understand it and start to consider it “. (Augé, 2002, pp. 23-24) Animism, therefore, apparently diametrically opposite the inertia of the raw material, at a more careful reflection appears to complement it.

For Karl Marx, fetishism is “a device that can subvert the relations between the animate an inanimate, between the material and the imaginary and project onto things a close-knit set of expectations, symbols and affective values.” (Fusillo, 2012, p. 22)
The fetish object is in fact first and foremost one that opposes pure efficiency, refuses to disappear into its mere function alone; it thus charges itself with a mysterious power, becoming enigmatic and impenetrable in its violation of the boundary between people and things. (Carmagnola & Ferraresi, 1999)

Today’s fusion of the fetish with electronics, smart materials and advanced technologies introduces a particularly interesting declination: the sense of the archaic blends with the concrete possibility of making it an animated device.

The most emblematic exhibitions related to the theme is Fetishism. Obsessions in Fashion & Design (Trapholt Museum, Denmark March 2015 - January 2016) organised by L. Edelkoort, P. Fimmano and W. Schenk. It exhibits objects of approximately 100 designers, including, Maarten Baas, Marcel Wanders, Jaime Hayon, Iris van Herpen, Walter van Beirendonck, Studio Job, Kiki van Eijk, Bokja, Bertjan Pot, Christien Meindertsma, Claudy Jongstra, Iris van Herpen, Rick Owens, Undercover and Phoebe Philo. The settings are divided up into ten themes, including nudism, sadomasochism, absurdism, consumism, romanticism, legendism, shamanism and spiritualism, all relating to a sort of fanaticism and obsession for the object and its details.

Figure 4. Fetishism, the exhibition by Lidewij Edelkoort, in his first version at Milan Fuorisalone, 2014.

The aesthetics of the fetish and the mini-ego object, although they seem to be opposites, can they coincide? Probably in the irony of Modoloco design, where small hardware
elements, wall plugs, each one takes on an iconic value. The obsession with detail is, on the other hand, as characteristic of fetishism as it is of design.

5. Sensory and neo-material aesthetics

The sensory key-word identifies a reaction of design culture to the devaluation of the empirical knowledge, implicit in modernist methodology, and the exclusion of the varied sensory range from the centrality of a project, all focused on vision. The traditional object is, by its very definition, an isolated entity, unable to interact, destined only to be observed.

From the point of view of Modernism, the object lies in a space marked out by geometry, which is interpreted as a direct filiation of the renaissance: as in the Renaissance, form is reduced to abstract schemes and a system of syntactical relations, the eye therefore plays a neutral role of observation. (Payne, 2011, pp.76-77) The object is simple, glossy, made up of elementary forms and lives in a space that is basically sexless, with no noise or odour, illuminated as day with no penumbra; the fundamental qualities of an environment or object can be ascribed to the coherence of form, structure and functional needs, rather than to be experience-based.

Clino Trini Castelli and Branzi in the 1970s develop the Design Primario movement, focusing on the soft qualities of the products and the environment. They collaborated with various Italian companies on the development of products endowed with new aesthetic values: chiaroscuro, the environmental music, the microclimate, the olfactive and tactile aspects and material finishes; all the aspects of perception neglected by Rationalism become material for the project (Castelli & Petrillo, 1982). The expansion of the discipline of design beyond the hyper-defined object and towards the concept of experience today moves along this line.

The Ying Gao’s interactive clothes of the project Incertitudes, the work Olfattorio of Cristina Celestino, the project Nascosto by Officina Corpuscoli, based on an amplified sound by bacteria, the project Anthropomorphic Sensory by Lesley Ann Daly, are some emblematic examples of a design propensity to valorise a large sensory range. In the work of Usman Haque, the presence of the human body can interact with devices for a single sense, as in his projects Sonic Environment or Scents of spaces. MachineHistories group with the project Cymatics Display, feels the need to transform pure data from the Internet into tangible matter and sensory relationship.

The user is immersed in an iridescent concatenation of flows and stimuli that tend to involve it emotionally. The aesthetics, we can say, reaches his most large meaning – once present in the vibrant, multi-sensorial interior of gothic cathedrals –, neglected by Renaissance and thus by Rationalism.
Figure 5. Bruce Munro, Tili Wiru Tjuta Nyakutjaku, Uluru, Australia, 2017.

Figure 6. MachineHistories, Cymatics Display, 2014. A device that generates waveforms through water, managing in real time data from an Audi’s social campaign.
The key-word *neo material* is linked to the sensory but concerns the production process rather than the user’s experience. The neo-material appears in fact as a reaction to the scission of thought, machine and hand, characterizing the standard production of the modern industry.

Today designers appear to refuse the hidden, separated production process and declare, in multiple manners, the value of a free invention of their material world. Producers in the first person, devoting their time in certain cases to the development of specific machinery. “The neo material comes within the folds of the most advanced experiments, moving between scrupulous laboratory research and an investigation into the machines and materials used for the direct construction of the project” (Scarpitti, 2017, p.131).

A scenario that is at the opposite end of a model in which industry is delivered the abstract matrix, the project, that the machine will automatically be set to develop and replicate. In the staff laboratory, in the individual process, instead, *something* always happens.

We can mention the research conducted by Studio Formafantasma, on natural polymers, by Lucie Libotte, on dust, or Aliki Van Der Krujs, on rain, by Jolan van der Wiel, through a blend of magnetic powders and pigments. In the project B/NDALTAAU Revital Cohen & Tuur van Balen, invents a new mineral recovered by old hard disks.

*Figure 7. Studio Laura Daza, DIY Colour Recipe Book, 2014.*
“Heterogeneous, unexpected, organic and inorganic materials, digital instruments and machinery; everything is positioned in a single synaesthetic space that is the laboratory. This intersection of vision and techniques gives rise to the most unforeseeable products” (Scarpitti, 2017, p. 132). The strength that the final project releases can prove to be proportional to the energy released into the production process, the direct working of the material, with all its imperfection and rejects. The virtual and the dematerialisation perhaps reach their bank and unsurpassable limit not only in the mineral hardness – that in any case characterises the world – but in the essential corporeity of man and his hands.

6. Design at a forefront

As shown, design continues today to play a forefront role, using ever-new ways to become an interpreter of the metamorphosis of the object: softened or cruel, material as a stone or immaterial as a sensation, indifferent, minimal or excessive, ...anything but annihilated.

The multiform aesthetics in design we note today, can be interpreted as specific answers to the critiques that have progressively invested the cold object of International Style. The biologic and the immaterial however represent the underlying matrix of contemporary design sensitivity; two concepts apparently distant, but concordant for an evolutionary, light, performative artificial world. A world complex because interwoven with values and qualities: the closeness to nature and the valorization of the human experience of making, in multiform senses and perspectives. The most advanced design looks after both.

Will be so plural also the future aesthetics of design? We imagine yes, unless the future has a new glance in store for us, capable of flattening art, reality and technology under a new light, stronger or with the same intensity as Rationalism.

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The role of vernacular typography in the linguistic landscape of multicultural Singapore: A multimodal analysis case study of a gentrified street

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Abstract | The art of typography has been receiving a fair amount of attention at the crossroads of linguistic landscape, garnering the interest of sociolinguists. Technological advancement has pushed typography to the forefront alongside traditional modes of communication. It is therefore no longer viable to limit the analysis of communication modes to just speech and writing but to also consider typography as an important semiotic mode for meaning potential in its own right. This paper attempts to present a case study of analysing the vernacular typography of a gentrified street (Haji Lane) in Singapore through a multimodal analysis approach. The results provided preliminary insights into how Singaporeans through the creative expression of typography and language use, assert their 21st-century multicultural identity alongside the nation’s de facto language – English, in a situated gentrified urban environment. The study also contributes to an on-going endeavour of semiotizing typography as a mode for rational explanation.

KEYWORDS | LINGUISTIC LANDSCAPE, TYPOGRAPHY, MULTIMODALITY, SEMIOTICS, VERNACULAR TYPOGRAPHY
1. The relationship between linguistic landscape and typography

Linguistic landscape is an emerging field that refers to the "display of visible written language" (Gorter 2013, p.190) in a public domain taking into the social-cultural context that it's situated in. Linguistic landscape is hugely underpinned by prominent linguists Scollon & Scollon's (2003)'s concept of its geosemiotics framework, arguing that the study and interpretation of signs and language should take into consideration of its placement in the material world. The multi considerations of linguistic landscape thus require a cross-disciplinary analysis (Gorter, 2013). According to Gorter(2013), linguistic landscape is an "ecological arena" (p.197) that considers not only the modality of written text but also considers other modalities such as oral, images, objects, and placements situated in time, space, and people associated with. It can also be used as a research tool to understand language trends in urban spaces and the way in which users use the languages are also especially helpful to understand issues of multilingualism (Gorter, 2012).

Machin (2007) and Leeuwen (2006) called for the consideration of typography as semiotics in its own right so as to expand the linguistic analysis of traditional communication modes beyond that of just writing and speech. Designers Baines & Haslam (2005) also highlighted the disconnection of typographic studies and the features of language calling for more joint investigations of the two highly interconnected fields – language and typography. Machin(2007) argued that linguists have often neglected works from visual and media academics but at the same time, there is also an obvious lack of linguistic engagement within the field of visual communication.

The multi-dimensional nature of linguistic landscape thus opens up opportunities for scholars to rethink the traditional modes of communication which have been primarily speech and writing and call for consideration of other aspects of communication that language and signs are situated alongside in. The art of typography in particular has recently been receiving a fair amount of attention at the dynamic crossroad of linguistic landscapes around the world.

Creative designers, Banham (2011), Villagomez (2015), and Woodward(2015) started documenting series of letterforms found in the urban environment and posited how cultural and historical changes affect typography evolution of the city. In Hong Kong, there is emerging anthropology and topology research of bi-lingual typography of the city's vernacular neon signs creation and other everyday signage (Lou, 2016; Chan et al, 2014). In London, designer Hyndman(2016) has been conducting typographic tours since 2013 in the Dalston area of London with the aim of paying homage towards the working-class history, also embarks on a series of typographic experiments on how the visual display of typefaces has the power to affect our everyday decision making. Curtin's(2015) research into the playful linguistic landscape of Taipei's commercial signage took into considerations not only the verbal and written communication but also the visual treatment of commercial signage.
interpreted. In Singapore, academics have been looking into various shopfront signages in recent years particularly from a multilingual perspective (Shang & Guo, 2017; Hult & Kelly-Holmes, 2019).

## 2. Situating typography in linguistic landscapes

Typography is often seen as secondary to the meaning of the written content as it's often associated as a technical craft of aesthetical legibility instead of an important semiotic mode in its own right (Baines & Haslam, 2005; Leeuwen, 2006; Serafini & Clausen, 2016). However, the ease of technological advancement means communication work in public spaces that are used to be done only with the use of language now shares the responsibility with the art of typography making. (Baines & Haslam, 2005; Leeuwen, 2006).

The importance of the relationship between typography and linguistic landscape is further revealed by Banham's (2011) documentation of typographical signs seen around a city arguing that sign reveals cultural stories that have the potential to converge different disciplines together, allowing the audience to relate to typography to a "larger cultural experience" (p.14) and creating new avenues of heritage appreciation. Baines & Haslam (2005) likens typography to inventions of the wheel and electricity that "underpins modern Western Life" (p.10). Lupton(2010) and Hydnman (2016) demonstrates how the creative usage of typeface choices and treatments are not only of legibility or aesthetical consideration but provide contextual narratives that the typefaces are situated in. These examples highlighted by creative designers align with Scollon & Scollon's (2003) geosemiotics framework of signs and language analysis putting typography in the limelight of linguistic landscapes.

The definition of typography has hence evolved over the years from simply the study of its legibility (Warde & Lange, 1980) to the creative arrangement of text and typefaces efficiently as a visual system of processing information and word-based knowledge transmission (Ambrose & Aono-Billson, 2011; Baines & Haslam, 2005; Hoeks & Lentjes, 2015). In recent years, the definition of typography has started moving away from the aesthetical ability and functional means to a much more conceptual definition described by Ambrose & Harris (2017) as "the means by which a written idea is given a visual form" (p.6) rendering typography's capacity to influence communication in our everyday contemporary society.

Technological advancement has made it easier for anyone to arrange text and images in different combinations (Machin, 2007). Not only do designers have greater access to software tools to express communicative functions through the art of typography, but the untrained layman can also attempt to create typography for communication with greater ease than before. Thus, it has become a comfortable subject of discussion in everyday conversation and is acknowledged as an important expressive element of our everyday culture (Banham, 2011). The ease and rise of typographic presence in our everyday urban
spaces including the retail environment testify to the importance of the role that typography plays in communication and thus in the linguistic landscape.

3. Typography as a semiotic resource for analysis

Typography – a subject area within the domain of graphic design as the art of typeface arrangements has emerged to be an important mode of analysis with meaning potential (Curtin, 2015; Hult & Kelly-Holmes, 2019; Lou, 2016; Serafini & Clausen, 2016; Shang & Guo, 2017; Järlehed & Jaworski, 2015).

This is largely due to the on-going attempts of systematically organizing the subject as a semiotic system by academics of various fields which includes linguists, semiotician, and designers (Ambrose & Harris, 2017; Baines & Haslam, 2005; Hyndman, 2016; Leeuwen, 2006; Lupton, 2010; Machin, 2007).

In order to consider typography for analysis at the crossroads of linguistic landscapes, it is important to establish typography as a semiotic mode in its own right with its own set of grammar and lexicon. Linguist Van Leeuwen (2006) noted the potential of typography as a medium with its own lexicon but noted that it lacks "complex grammar" (p.154) to consider it as a mode. Without an established set of grammar – analysis thus becomes unsystematic. Van Leeuwen (2006) then made a pioneering attempt to argue for typography as a "means of communication in its own right" having the capacity for fulfilling Halliday’s (1978) three broad communication functions of ideational, interpersonal, and textual. Analyzing distinctive features of typography such as type weight, type manipulation, type connectivity just to name a few for the meaning potential that each features produces. Van Leeuwen (2006) attempts to present a systematic way of semiotizing typography not only with its lexicon but at the same time figuring out whether it may have a set of complex grammar.

The graphic design domain whilst less established than it's linguistic counterparts had since seen various endeavours by visual design academics in recent years to conceptualize typography as a systematic resource, breaking down visual cues into basic components to develop a typographic lexicon and grammar that can serve as rational choices and explanation within a context instead of depending on abstract intuition.

Visual design academics are now presented with opportunities to reference it's established linguistic counterparts to examine typographical visual written form playing out in linguistic landscapes with its own set of typographical lexicon and grammar.

Ambrose & Harris (2017) deconstructed typography in all manners of it's visual cues from the style of typefaces to the way it's being used, at the same time providing various visual examples located in the material world of how the visual cues provided meaning potential in the context of communicating messages across. Hyndman (2016) highlighted typography in the manner of how choices of typefaces can potentially influence decision making processes
in our everyday environment. Lupton (2010) provided explanations of how layout alignment variations could communicate different moods and messages. All of these point to an ongoing endeavour of demystifying typography as simply an abstract art of visual text arrangement.

4. The multimodal analysis

The concept of multimodality in linguistic advocates for the analysis of communication of both visual as well as textual. Advocates of the multimodal concept encourage academics to move away from traditional monomodal analysis, i.e. analysing only just text or just visuals, and instead take on a holistic approach of semiotics analysis to move forward with the way communication advanced beyond just text and content (Kress & Leeuwen, 1996; Machin, 2007). The framework for a robust multimodality analysis is however still controversial and lacking (Leeuwen, 2006).

5. Purpose/research question

This paper hence attempts to present a small-scale case study of analyzing the vernacular typography of a gentrified street (Haji Lane) in Singapore via a multimodal analysis of both the text and its visual form, and through the process, allows it to reveal potential cultural, social and historical narratives of Singapore's multicultural linguistic landscape. Through this small-scale case study, the paper aims to respond to the above backdrop by contributing to the search for a more robust analysis framework of communication work done through typography.

6. Shop signage analysis through the lens of vernacular typography in Haji Lane

Vernacular typography in this paper refers to the art of creative textual arrangements created by ordinary people, who may or may not have any typographic training. Vernacular typography is usually differentiated from globally recognized standards of typography making and reading. Created by the everyday ordinary people, vernacular typography reflects the everyday voice of the environment it is situated in rendering it a suitable choice of analysis for linguistic landscapes. Amongst the variety of vernacular typography, signage has been considered as an important "visual fabric of a neighbourhood" (Banham, 2011) and shop signage is especially vernacular due to its "bottoms-up" nature of creation (Shang & Guo, 2017) and has provided rich materials for analysis in various linguistic landscapes research (Lou, 2016). This paper hence proposes to analyse four shop signage in Haji Lane located in Singapore.
7. Methodology

7.1 Research site

Haji Lane has been chosen as the street for analysis due to its recent years of gentrification from historically a quiet Muslim residential quarter to a trendy lifestyle hotspot for young Singaporeans and tourists alike. Independent shops set up by young designers and entrepreneurs offer an array of lifestyle options from fashionable wear made locally to eclectic vintage wear, of food and beverages that pride its' local origins and inspiration (Walk Down Haji Lane in Singapore, 2017). Haji Lane has in recent years became the epitome of an ideology determined to move away from the standardization and homogenization of offering due to the effects of globalization, providing Singaporeans and tourists alike an alternative form of consumerism.

7.2 Data collection

Four shops that operate on Haji Lane have been chosen as the sample for analysis. The four shops are chosen on the basis that each shop offers a different nature of business from each other to reflect the diversity of offering on Haji Lane. The shops were also chosen on the basis that the main language used on the shop front signage each reflects the diversity of the four main languages of Singapore - English, Chinese, Malay, and Tamil. However, no Tamil was found to be used as the main language of the shop front signage on Haji Lane. Thus, Tamil representation is missing from the sample size.

The criteria of analysis are such that each shop will be analysed for its shop front sign and one other supporting visual collateral. In the study of branding, the visual identity of a business goes beyond that of its name on the signage but is interlinked by a series of other elements to communicate the brand offering (Slade-Brooking, 2016). Hence the author attempts to also analyse a second visual collateral that supports the business communication for a more holistic representation of the typographical communication that it’s situated in. As per the shop front sign, the second visual collateral must deem to be displayed explicitly in the public eye.

Table 1: Comparison of the types of supporting visual collateral in addition to the shop front signage across four shops in Haji Lane, Singapore

<table>
<thead>
<tr>
<th>Name of shop</th>
<th>Good Luck Beerhouse</th>
<th>The Singapura Club</th>
<th>Jia</th>
<th>Mokita Cuisine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of business</td>
<td>Beerhouse</td>
<td>Contemporary Indian and Malay cuisine</td>
<td>Contemporary female fashion retail</td>
<td>Traditional Malay cuisine</td>
</tr>
<tr>
<td>Main signage</td>
<td>Shopfront sign</td>
<td>Shopfront sign</td>
<td>Shopfront sign</td>
<td>Shopfront sign</td>
</tr>
</tbody>
</table>
Machin(2007) and Leeuwen(2006) both of whom are linguists attempted an inventory of typographical features which typography can be semiotized to create a ‘typographic profile’. This paper however proposes to consider three other features as part of the inventory in an attempt to decipher the meaning potential behind the typographic treatment of each shop and by extension provide a more holistic overview of the linguistic landscape of Haji Lane. This paper will hence analyse the following three suggested modes employed to highlight any meaning potential:

1. **language choice** of the shops’ signage
2. **typeface classification** used in the typography creation and
3. **type hierarchy methods** employed

Due to word restrictions, the author will present only two examples of analysis in each of the above categorization.

## 8. Analysis and findings

### 8.1 Language choice

Singapore is a multicultural society with four main languages (English, Mandarin, Malay, and Tamil) being used and spoken with English as the official communication. It is important to consider how these languages are being visually displayed and juxtaposition with each other reflecting the cross-cultural spirit of the street.

From table 2 below, English is seen to be present in almost all the shop front signage and in all of it’s supporting collaterals. All shops have an additional language used apart from English, either as part of the shop front signage or on it’s supporting collaterals. This reflects a very diverse representation of the business and the way each business wants to project its identity for the customers. The usage of Tamil language is however missing from the sample as no shop features Tamil as the main language of any shop front signage.

**Table 2: Comparison of the language used on signage across four shops in Haji Lane, Singapore**

<table>
<thead>
<tr>
<th>Name of shop</th>
<th>Good Luck Beerhouse</th>
<th>The Singapura Club</th>
<th>Jia</th>
<th>Mokita Cuisine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LANGUAGE FEATURED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopfront signage</td>
<td>English</td>
<td>Romanized Sanskrit, English</td>
<td>Chinese, PinYin (official romanized Chinese)</td>
<td>Malay, English, Arabic</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------</td>
<td>-----------------------------</td>
<td>---------------------------------------------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supporting collateral</th>
<th>English, Chinese</th>
<th>Romanized Sanskrit, English</th>
<th>English, Chinese</th>
<th>Malay, English, Arabic</th>
</tr>
</thead>
</table>

**Image 1.** Signage of 家Jia – contemporary female fashion retail. Left: Shopfront signage. Right: Stairways (supporting collateral)

家Jia (contemporary female fashion retail, see image 1) - shopfront signage did not feature any English words but instead a romanised version of the Chinese word 家 which means ‘home’ and has been translated into English pronounced as ‘Jia’. ‘Jia’ does not mean anything in the English language but for an audience who is bilingual in both English and Chinese, ‘Jia’ becomes an accompanying English name to the Chinese name of the shop. The supporting collateral is a mixture of English and Chinese language. English is used to describe the type of fashion wear that the shop retail while the shop’s name in the Chinese character 家 is repeated on the stairways. This perhaps suggests that while Chinese is used for the shop front but when it comes to the description of its products, English became the choice of communication.
Mokita Cuisine *(Traditional Malay cuisine, see image 2)* - the shop front signage features Malay, English, and Arabic language. ‘Mokita’ does not mean anything in the Malay language but when deconstructed, ‘kita’ means ‘us’ and is a recognized Malay word. Adding the word ‘Mo’ to the front of ‘kita’ suggests it’s probably a Malay shop vendor’s name. The word ‘Cuisine’ is in English. By combining a Malay name with an English noun, it suggests some form of Malay authenticity to the dishes served while communicating to potential customers who are likely to be English speaking. At the top of the signage is the use of Arabic depicting an Islamic phrase of morning prayers. The supporting collateral is a combination of the same three different languages as used for the shop front signage - English, Malay, and Arabic. English is mostly used to describe the kind of dishes served in combination with some Malay words such as ‘Satay’ *(meat skewers)* or ‘Ayam’ *(chicken)*. At both top corners of the supporting collateral is the well-known Arabic phrase pronounced as ‘halal’ which refers to a form of animal slaughtering adhering to Islamic law according to the Koran. This is in turn translated into its English pronunciation below.

**8.2 Typeface classification**

Typeface classification is often categorized according to their historical origins and by extension, its inherent characteristics (Ambrose & Harris, 2017; Lupton, 2010). This means each category typically possess some similarity of characteristics and reflects a certain narrative associated with a particular era or culture.

Table 3 below shows a variety of typeface classifications used that is beyond that of the Latin system categorization reflecting diverse creativity of representation of the business. However, as per the language used, the use of Latin type classification is still prominent in all
of the shop front signage as well as the supporting visual collateral due to the prominence of the English language.

Table 3: Comparison of typeface classification used across four shops in Haji Lane, Singapore

<table>
<thead>
<tr>
<th>Name of shop</th>
<th>Good Luck Beerhouse</th>
<th>The Singapura Club</th>
<th>Jia</th>
<th>Mokita Cuisine</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPEFACE CLASSIFICATION USED</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopfront signage</td>
<td>Slab Serif</td>
<td>Modern</td>
<td>Archaic Chinese script, Neogrotesque</td>
<td>Latin script, Arabic script</td>
</tr>
<tr>
<td>Supporting collateral</td>
<td>Latin script, Chinese brushstroke characters</td>
<td>Modern, Grotesque</td>
<td>Calligraphic script, hand lettering, Transitional</td>
<td>Humanist Sans, Arabic script</td>
</tr>
</tbody>
</table>


**Good Luck Beerhouse (Beerhouse, see image 3)** – the shop front signage uses a very heavyweight slab serif typeface with British historical origins reflecting a British–styled pub appeal but yet the accompanying visual collateral features bold use of Chinese characters in brushstroke style demonstrating the desire to assert the business’s Chinese identity at the same time. It is perhaps suggestive of the Singaporean’s bilingual pride and patriotism while offering locally brewed beer.
Mokita Cuisine *(Traditional Malay cuisine, see image 2)* - uses the Latin script to visualize the shop’s name in English but at the same time also uses the Arabic script on top of the shop’s name illustrating Muslim’s morning prayers of good wishes. In the supporting collateral, a banner, Humanist Sans typeface which is a very legible sans serif typeface is used to describe the type of food served in the restaurant accompanied by the Halal sign in Arabic script again. Both the shop front signage, as well as the supporting collateral, uses the Latin system of alphabets as the main communication and both are accompanied by Arabic script indicating the Halal food it serves, distinguishing itself as a dietary choice catering to the Muslim community.

### 8.3 Type hierarchy methods

Type hierarchy is the concept of expressing the importance of communication via the arrangement of the visual written word. It can be done through a variety of typographical methods from scale to colour and can also be done via placement or orientation. (Ambrose & Aono-Billson, 2011)

Table 4 below shows a variety of methods identified used to create salience. The use of scaling (i.e. larger type sizes) appears to be prominent followed by stylizing of the typefaces and use of contrasting colour. The placement of type appears only in Jia’s shopfront signage perhaps due to the top-down method of reading the Chinese language. Despite the variety of methods employed, creating a larger type size seems to be a prominent method of communicating it’s various business narrative.

*Table 4: Comparison of type hierarchy methods employed across four shops in Haji Lane, Singapore*

<table>
<thead>
<tr>
<th>Name of shop</th>
<th>Good Luck Beerhouse</th>
<th>The Singapura Club</th>
<th>Jia</th>
<th>Mokita Cuisine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TYPE HIERARCHY METHODS EMPLOYED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopfront signage</td>
<td>Uppercasing, contrasting colour usage</td>
<td>Stylized typeface, larger type size, uppercasing</td>
<td>Stylized typeface, large type size, placement</td>
<td>Stylized typeface, large type size</td>
</tr>
<tr>
<td>Supporting collateral</td>
<td>Large type size, contrasting colour usage</td>
<td>Large type size, contrasting colour usage</td>
<td>Larger type size, heavy type weight</td>
<td>Uppercasing, contrasting colour usage</td>
</tr>
</tbody>
</table>
The Singapura Club (Contemporary Indian and Malay cuisine, see image 4) – the shop front signage has the word ‘Singapura’ highlighted via a larger type size and also via a stylized version of the Modern typeface used. ‘Singapura’ is an Indianized Malay word and an old name for Singapore (Government of Singapore). The word is no longer used to describe Singapore but frequently heard of in the country’s national anthem that is sung and written in the de jure Malay language. By highlighting this word as the first hierarchy of the signage highlights a desire to reminiscent Singapore’s nostalgic past and displaying patriotism at the same time. The supporting collateral highlighted two words ‘Singapura Club’ through type size and colour in equal measures suggesting the effort to emphasize a modern twist with the ‘club’ word added to the nostalgia ‘Singapura’ name communicating a brand that is in creative dichotomy.

Jia’s (contemporary female fashion retail, see image 1) - shopfront signage highlighted the Chinese character as the top hierarchy through type size and a top-down type placement reflecting the desire to demonstrate an association of Chinese culture by reading from top to bottom, however, it's supporting collateral type emphasis turned to the emphasis of English words such as ‘Accessories’, ‘skirt’ or ‘Footwear’ describing the type of fashion wear that the business retails. This potentially suggests that the Chinese character is used as a front façade for the shop but when it comes to the description of its products, English became the salient choice of communication.
9. Conclusion

Language is intrinsically linked to typeface classification. While the use of the English language and hence the use of the Latin type classification is prominent, this research showed clues of businesses demonstrating various cultural, social, and religious offerings though the use of other languages and typographical systems beyond that of English and the Latin system. This suggests a creative entrepreneurial method of distinguishing themselves from the homogenization of lifestyle offering that is usually found in regular shopping malls where most signs and languages are likely to be restricted by mall landlords to reflect the nation's de facto English language. The lack of language restriction use in Haji Lane means small independent businesses can assert cultural, social, and religious offerings through various "designerly" typographical modes. The study provides preliminary insight into how Singapore's bilingualism education policy of using English as the main language of communication while mother tongues acted as cultural connections have translated into an innovative vernacular method linguistically and typographically to distinguish the Singaporean identity pragmatically – using the English language and Latin system of designing to communicate it’s offering while employing various mother tongues system of designing to assert it's Asian identity. This small research sample is not entirely comprehensive of Haji Lane's linguistic landscape but it provides a sneak peek into the discourse of 21st-century Singaporean youth's search of their cultural heritage through the expression of typography amidst their consumerist lifestyle.

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The Threshold of Language: Design and Soma

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Abstract | This paper explores the soft, fluid space in between disciplines that allow for an expansion of creativity. Disciplines often employ their own diverse modalities to express their work, including verbal vocabulary. The paper is an extended case study into a cross-disciplinary project between fashion design and dance students at LASALLE College of the Arts, Singapore. The project uses origami as a shared provocation. While origami tends to be a set of instructions aimed at arriving at a specific form or figure, in this project, paper folding, more specifically the concept of the fold itself, was used in loose, abstract and organic manner to allow students to explore it as a language responding to visual, haptic and verbal stimuli.

Pedagogically, the project resonated with methodologies utilized within the Bauhaus curriculum. The Bauhaus educator and artist, Johannes Itten, worked with material tactile play, drawing exercises and sensorial activities that were ‘mediated through the body’ (Jeffrey Saletnik) as part of his pedagogic practice. As Itten has stated in Design and Form: The Basic Course at the Bauhaus and Later (1963, p.8) young people who “begin with market research and practical and technical work seldom feel encouraged to search for something really new”. This paper looks into the ways this project, allows students ‘strengthen’ imagination and creativity. Utilising preparatory workshops observations, students’ journals and final performance, the paper will detail the ‘collisions’ and resulting tensions of disciplinary languages that results from cross-disciplinary collaborations.

KEYWORDS | CROSS-DISCIPLINARY, SOMATIC, BAUHAUS PEDAGOGY, FASHION DESIGN, DANCE
1. Introduction

This paper explores the soft, fluid space in between disciplines that allow for an expansion of creativity and vocabulary. Creative disciplines often employ their own diverse modalities to express their work, including verbal vocabulary. In this project, students from the Diploma in Fashion and Diploma in Dance collaborated together utilising shared provocations that are not specific to their disciplines, specifically rooted in the concept of the ‘fold’. This paper delineates the fourth iteration of the ‘Origami as Movement’ project, with a focus on open, organic and porous manifestation of the technique of origami – ori (folding) gami (paper). The project, by beginning with paper folding and Gilles Deleuze’s (1993) description of the fold as a process that is not fixed or punctuated, developed into choreographies and garment design that are elastic, anti-form and habitable. The paper will reflect on the project through both fashion and dance disciplines, and upon the visual and kinaesthetic language that developed in the collaborations.

2. Context

The high stakes in the world’s coveted schools means that the pursuit of fashion and design education often comes at a high financial and personal cost to students (Doyle, 2020), with little space for exploration, failure and risk-taking. This has given rise to designers that enter the industry ready with a palette of result-driven and tested formulas that cater to the market. As Itten has stated in Design and Form: The Basic Course at the Bauhaus and Later (1963, p.8) young people who “begin with market research and practical and technical work seldom feel encouraged to search for something really new”. For innovation to happen, creativity has to be prioritised over the market-driven design processes.

The creative process at the Diploma in Fashion typically follows prescribed steps and approaches to provide students with a consistent working style to suit the industry. These are also common steps found in several guides on fashion education (Renfrew, 2009). Studying the brief, doing secondary and primary research through observations, target audience and market research, material research, explorations with existing technical patterns or draping on an industry-standard body form. The students then move into a prototyping (the toile) stage where the garment sample is made and altered for fit. It is after this stage where the final garment is made with the actual fabric or material.
Figure 1. The roadmap in working on creative briefs at the diploma level at the Diploma in Fashion typically follows Figure 1. The process is usually linear and has limited bandwidth for circular revision.

It is important to note that the students at the Diploma level are mostly in their late teens to early twenties, with little to no experience in art and design before embarking on the programme. A large portion of the students enrol in the Diploma directly from public secondary schools. The primary and secondary public-school education system emphasises on testing as a form of meritocracy, this in turn discourages innovation, risk-taking and creativity. The project was initially conceived as a response by the Programme Leader to include a brief that was devoid of market constraints to increase risk-taking and experimentation.

At the Diploma in Fashion, students respond to targeted trends and audiences, all the while still mastering fundamental skills. In their third and final year of the Diploma, students have the necessary technical skills to approach more experimental and cross-disciplinary approaches to design. It is at the first semester of the final year that the said cross-disciplinary project takes place.

Similarly, the dance students enter into the Diploma course studies with a lack of experimental experience. Their early training tends to be focused on recipe driven forms and styles with little or no improvisational exploration to yield risk, play and agency within their choreographic making or ideas in and around the art field and performance.

The project had 3 aims:

1. To expand **creativity** through multiple modes of research, risk taking and play;
2. To encourage **fluidity** through cross-disciplinary collaboration;
3. To do the above through the experience of **somatic exploration**.
2.1 Expanding Creativity

As Paul Kleiman (2008) states in his research on creativity—the term evades strict definition and is often at odds with curriculum frameworks. There was a need to adapt the curriculum structure to accommodate a project that was not assessing the merits of the final garment as per industry. To privilege process over final aesthetic, the feedback and evaluation was centred on the aspects of the designed objects that allowed for an expansion in choreographed conversation with the dance students. Feedback and assessment for this project was thus adapted to also include a photo logging as reflection, using visual-heavy social media platform Instagram. Within this cross-collaborative project, intentional limitations set in the brief and the selection of workshops were meant to disrupt the students’ usual design process.

Another way this project aimed to expand creativity was to remove market constraints. The global fashion system is firmly established root and branch in the ecosystem of fashion trends, market demands and supplies, seasons, manufacturing, supply chains and target markets. This creates challenges at the vocational level for a programme to introduce divergent forms of practices or approaches in conceptualising and developing a fashion collection. The brief intentionally disregarded these constraints and instead, the students were encouraged to collaborate with the dancers in a constant dialogue that allowed both garments and choreographies to respond to each other. The briefs, when stripped of market constraints gave rise to the exploration of new perspectives.

2.2 Fluidity

With regards to creativity, one should not be inclined to lock down a specific definition or approach. It can and should be viewed as an activity described and nested within a whole host of parameters such as: proactivity, intelligence, play, openness, courage, patience, listening, intuition, rigour, and wayfaring. Embracing these, an individual’s creative practice can be elastic and ready to focus and respond to the specificity of limitations that arise in the moment. By yielding a learning place that is porous and fluid, the students are supported to go beyond their ‘default mode’ of working. Riding the currents to constantly question ‘what if...’.

This particular project hones in on the students’ process. Through each stage of the process varied obstacles arise; how can they be empowered to shift, yield, expand, distil—from their inherent modes of making? Beginning with a fluid landscape in the opening workshop, continuing through a dialogue of equally sharing body, garment/costume and movement as one shape-shifting being, this collaboration provides a buoyant platform to expand learning and creativity.

In fashion studies and academia, definitions have been important to add rigour to the study of fashion which has often been seen as a frivolous discipline. In the seminal book “Dress and Identity” Joanne B. Eicher and Mary-Ellen Roach-Higgins (1995) define *dress* as an
assemblage of body modifications and supplements. This takes dress away from the Western-centric fashion system, and can include non-Western aspects of permanent modifications such as tattoos or ephemeral modifications such as perfume. The term *garment* has connotations of manufactured clothing produced in assembly lines devoid of culture specificity. On the other hand, ‘unwearable’ or garments made for performance and not for everyday wear are referred to as *costume*. The definitions of garment-costume-dress shift and overlap throughout this extended case-study, at times even becoming a shell or vessel to the wearer.

2.3 Somatic Exploration

An increased interest in embodiment and somatic research methods in fashion point to a desire to better integrate the lived, physical body into fashion studies (Entwistle, 2000; Entwistle, 2015; Negrin, 2016; Ruggerone, 2017). Despite the intricate connection between body and garments, fashion is often studied and accepted as a primarily “visual, expressive, and aesthetic practice” (Robinson). Lewellyn Negrin, a feminist aesthetics scholar, points out that by shifting emphasis to the embodied, tactile and kinaesthetic experience of clothing, fashion studies focus on what the body *does* and not just how it appears.

By including the perspective of a somatic practitioner into the workshops and tutorials, the project attempts to integrate the language of movement into the vocabulary of the designers. Soma, coming from the Greek for body, “…any individual embodiment of a process, which endures and adapts through time... remains a soma as long as it lives.” (Hanna, 1976, pp.30-34). Somatic movement educator and therapist Martha Eddy writes “In somatic studies, the body is perceived as the source of human intelligence - one learns through the living body.” (Eddy, 2016, pp.7-8). Somatic practices, desire a quest for “tuning in”, thus they incorporate methods such as touch, exploring with eyes closed, honing in on individual senses, covering mirrors and utilising language filled with rich imagery landscapes. All these activities hone in on the body, on how movement feels and its qualities, not how it looks. The focus is not on form; however, forms do arise, but from an internal stimuli. By creating a ‘somatic learning environment’ the somatic data not only informs, but also transforms (Batson, 2014, p.128). The instructions (or better yet invitations) are directed toward discovery, rather than goal attainment (Batson, 2014, p.131). By initiating the project through somatic tasks around the chosen theme and encouraging this knowledge to be iterated throughout the process, all students are supported within an exploratory, somatically informed environment.
3. Extended Case Study Results

This extended case study is informed by qualitative research methods including workshop and tutorial observations throughout the seven weeks of the term (October–November 2019), discussions between tutors from the Diploma in Fashion and Diploma in Dance, analysis of the final presentation/performance and individual student reflections. A total of 15 groups made up of 56 fashion design students and 15 dance students, each group worked to develop a choreographed piece. The cross-collaborative project was punctuated with a variety of intentional interventions and provocations as well as specific meeting points where lecturers from both disciplines would be timetabled for shared consultations with the students. The authors, lecturers from the School of Fashion and the School of Dance and Theatre will articulate the challenges and success of this project from their individual perspectives, including the ‘collisions’ and resulting tensions of disciplinary languages in cross-disciplinary collaborations. Most of the fashion design students were graded very highly in this project due to the shared workload and the focus on process, play and the allowance the garments/costumes gave the dancers in their choreography.

Figure 2. The roadmap for this project was unlike the student’s usual linear design process seen in Figure 1. From Body to Designers, there is a constant dialogue and revision process.

Honing in on somatic practices which are process orientated and focused on embodied learning, the students were encouraged to enter into the concept of ‘folding’ through tools or activities including explorations involving movement, touch and the visual. While origami tends to be a set of instructions aimed at arriving to a specific form or figure, in this specific iteration, paper folding was used in a more organic manner that allowed students to use it as a language responding to visual, haptic and verbal stimuli. Furthermore, the project adopted the visual arts, specifically that of minimalism-post-minimalism-anti-form, as the thematic baseline from which each practitioner responded to. Students were explicitly discouraged from going into their individual disciplines for visual research, thus yielding a more expansive palette in their responses which can be seen in some of their reflective journals. In Figure 2, the exploratory journey is illustrated not as a linear process, but at times a to-and-fro
dialogue that supported an expansion of creativity as well as greater specificity in editing for both garments and choreographic gestures.

3.1 Preparatory Workshops

At the start of the project, the idea of the fold was introduced. To paraphrase Deleuze; the smallest unit of matter is not the point but the fold (1993). Seeing the fold and folding having infinite dimensions and possibilities. Experiential tasks stimulated a novel way of understanding the fold and engaging with the activity of folding. Working from breath and internal visualization, noticing tasks, sight and haptic drawings as well as play with paper, tissue and fabric allowed for a nonverbal ‘ways in’ of understanding and play.

As the workshop continued layers of other information were added helping to shape and yield specificity to their dialogue and collaborative engagement. Of particular note on Table 1, the final activity for the workshops included timed responses to images of art works projected on the screen; these timed activities were introduced to encourage intuition-based responses. First, through verbal responses, then spatial where students made ‘prototypes’ out of paper directly on the Dance student’s body. Fashion students were encouraged to record these experiments and utilize them as design prompts for their own studio work.

Table 1. Breakdown of shared somatic workshop for designers and dancers.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting point from a theoretical place, the fold.</td>
<td>Giving a basic understanding to the fold regardless of discipline.</td>
</tr>
<tr>
<td>Layering with biological, visual art, architectural sources.</td>
<td></td>
</tr>
<tr>
<td>Engaging in different experiential modalities to find ways in: meditative somatic exploration of fold/folding through breath and imagery, searching for folds within the site via sight, drawing a fold from sight, drawing the same fold from touch, exploration of folding onto paper in a more playful, roaming manner.</td>
<td>Diverse somatic activities, encouraging play regardless of discipline.</td>
</tr>
<tr>
<td>Lastly, students invited to curate space with their folded paper sculptures and clothing they brought in of varied forms, textures and qualities. Dance students entered into this landscape improvising via language prompts into a deeper folding improvisation witnessed and archived by the fashion students.</td>
<td></td>
</tr>
<tr>
<td>Challenging them further with another limitation, rooted in the visual arts, the movements of minimalism, postminimalism and anti-form.</td>
<td>Encouraging shared vocabularies regardless of discipline, by utilising artworks from minimalism, post-minimalism and anti-form.</td>
</tr>
<tr>
<td>Introducing the technique of origami (paper folding) but not to achieve a certain form (e.g. cranes) rather drawing out its underlying principles of hill and valley.</td>
<td>Reducing the technical aspects of origami to the fold, regardless of discipline.</td>
</tr>
</tbody>
</table>
Using 3 specific artworks from Minimalism-Post-Minimalism-Anti-form as prompts, inviting the students into a collaborative immediate response.

First into words of activities/qualities to the examples (for 3 minutes), then transferring these ideas directly into paper (5 minutes) to the dancer’s body.

It was in this final activity that the material play, noticing and drawing of folds and even the verbal vocabulary to describe form, was synthesised. In Figure 3 one group’s word association as a response to the art works projected on the screen can be seen. The vocabulary is associated with form—lines, shapes, textures and rhythms. They have no direct relation to garment silhouettes, fabrics or even colour. In Figure 4, we see the same group’s timed response to Eva Hesse’s artwork Area (1968), the words they associated with it were “constant-wavy-repetitive-layered-crawling-crumpled-uniform”. In Figure 4, we see the dancer has taken an active bodily state/form inspired by the same artwork (“crawling”) and the Fashion students began pleating and laying the paper on parts of his body (“layered”, “repetitive”). Their body language is engaged with the dancer’s ‘crawling’ body. Their response is highlighted as many of the groups worked in a static manner mimicking the way one would work with the dress mannequin as seen in Figure 5, with even the physical body language of the students creating a gulf between designer and ‘mannequin’.

Figure 3-4. Group A’s response. The second set of words on the yellow paper were key words the students associated with Eva Hesse’s Area 1968. In Figure 4 (right), the students translated it into a spatial response, with the dancer adopting ‘crawling’ as a pose, which was one of the keywords in Figure 3.
3.2 Development: Moving Away from Default Modes and Working through Conflict

After a day of workshops, the students then began working in their separate disciplines with the ideas they had generated as a starting point. The fashion students met weekly for the next five weeks during their design studio consultations where they had three supporting Fashion lecturers and a Dance lecturer. The personal process of development was archived through photo logging (Instagram), which encouraged immediate reflection with a medium that most of them use daily. The following examples are highlighted to show how the to and fro between dancer and designer opened a new languaging as well as possibilities of making, be that garment and/or movement. The creative focus was on risk-taking, fluidity, wayfaring and novel solutions. This was shown through projects that moved away from the habitual, migrating through conflict and expansion of their understanding of garment.

Once the fashion students were back in their studios, they tended to go back to their default modes. Shaatees from Group A, which had responded dynamically during the combined workshops, began using conventional methods to communicate such as sketching on a female fashion croquis- an elongated body used in fashion illustration, even though their dancer was male, as seen in Figure 6. The first prototype they made was more like a wrapping around the body (Figure 7-8), and they were told to consider it expanding to a larger scale to allow the body more space and affordance. There was resistance from the student to try ideas directly on the body, without first sketching them out, as can be seen in conversations between the student and lecturer. It took a very intentional and continuous

Figure 5. Group B’s response was more static, with the fashion students treating the dancer as a mannequin or dress form, instead of a moving body.
reminder to consider the dancer’s possibilities of movement and to stay away from discipline-centred research.

Figure 6. Group A student’s Instagram photo log shows the student going back to default mode in his communication of garments. Even though his group’s dancer was male, he illustrated on a female croquis. An elongated fashion figurine used in fashion drawings.

Technical skill can be a constraint, but also allows different possibilities. Group A’s idea was reduced further and their technical abilities developed a garment that was light, flexible and in the choreography, was treated like a ‘shell’ that the dancer was able to slip on, off and around within his choreographic work.
Figure 7-8. Group A returns to conventional ways of designing to the body, with the folded fabric covering the dancer’s body and creating a decorative surface with limited possibility for interaction with the garment.

Figure 9-10. Group A is forced to return to form, and not decoration, they prototype a simpler idea as seen in Figure 9. In Figure 10, student’s reflective journal shows their wonder at how their garment becomes an object in flight.
Figure 11. The final performance of Group A’s garment shows the garment becoming shell and inhabited by the dancer’s body.

For Group C, the beginning of the process was rife with conflict; with group members wanting to take different directions—from decorative to minimal. In the reflections of Daswani and Kim, we can see repeated descriptions about the mathematical calculations and technical know-how the project needed. In Figure 12 taken from Kim’s photo log, we can see that the group prototyped different ideas, beginning with visual references to Richard Serra’s work *The Hedgehog and the Fox* (2000) – far right – however, these prototypes echo conventional sleeves already seen in fashion garments. The group was challenged to think of scale, to envelop the body and not merely decorate it.

Figure 12. Photo log on Instagram by student from Group C. We see the visual references to Richard Serra’s work (far right) translated into pleats for the body (far left). However, the scale has been reduced and becomes almost decorative.
“Although it was challenging dealing with the scale, one of the best things I discovered about this project is that I didn’t have to construct something wearable. This kind of project helps us to generate and broad out the creativity and the ideas we have, apart from learning the technical aspects of fashion.” (Kim, 2019)

The prototyping – or toile-ing – process required in this process also required the students to physically use their bodies for scale, as seen in the following figures. Students literally were moving differently and viewing their work from different angles while trying to anticipate the possible journeys their dancers could take. In this manner, the groups could begin thinking about dress as a vessel and enabler for movement.

Figure 13-14. Figure 13 shows a photo log by Kim from Group C showing the scale of the garment. On Figure 14, a photograph by the lecturer shows the unusual and physical way the students took towards the construction of this garment.

It should also be noted that the dancer who collaborated with Group C was stretched clearly in her choreographic and performative norm. Not only through the dialogue with her fashion peers in decision making for the garment, but moreover in how she allowed new and playful vocabulary to emerge from working directly with the garment as another dancing body. Shifting from object, to body, to vessel, to skin and back, the choreographic work challenged the embodiment possibilities for both garment/costume and dancer. Nuance and sophistication of choices in both making and performance yielded an overall stunningly creative solo.
Figure 15-17. The garment from Group C went through several creative and technical modifications through the term as a result of a dialogue between both disciplines. The garment needs the interaction of the body to morph and develop form.
3.3 Final Performance: Beyond Garment

As the garments/costumes became finalised, the subtle shifts in garment or in solo are honed in, allowing for a further transformation into one body, rather than two. The students can view the collaboration as a hybrid of the two disciplines, forming another entity.

While many groups struggled and journeyed through different possibilities, Group D went with an initial idea that they carried through the seven weeks of the term, making slight changes to the scale and rhythm of the garment. Zulfa, one of the students’ in this group, showed early engagement with the theme. In Figure 18, the initial idea was to provide a garment with multiple holes with the idea of allowing different ways of entering the garment. The scale was still too decorative and small, so the students experimented with changing the scale and material, paying attention to how the holes/gaps created forms. The results of this particular piece really stretched the definition between dress-costume-garment-object, depending on how the dancer interacted with it.

![Figure 18-20. Photo log reflections from Group D shows the development of the project was smooth, and the changes made were nuanced and small—more internal and less dramatic.](image-url)
The dancers, improvised and worked collaboratively with the fashion designers, an interplay of conversation between inner bodily folds and the folding possibilities inherent in the garment/costumes emerged. Form arises, but out of the exploratory internal/external movement play. In the performances, it was impossible to determine a choreographic form, shape, or style from the start or to fully ‘set’ or ‘fix’ the movement language; the solos stayed in a constant state of becoming, yielding an aesthetic through process and time.

Figure 21-25. The fluidity of Group D’s garment can be seen in the choreography shown above. Group D’s dancer similarly found ways to go from a traditional showing of the garment as dress by beginning to lift it up above her (Figure 21, top left), and then discard it as shell (Figure 22, top right), inhabit it as a shell/container (Figure 23, bottom) and again find different ways to wear and escape the garment.

This constant conversation of the ‘choreographic making’ and the needs of ‘performance’ opened to tone and details to shape and hold the solos. The vulnerability and surprise that each garment/costume possessed were key to the sophistication of invention within the works. They could be read and related to as another ‘body’, a partner/companion, each becoming a bodily extension, a nest, a container.
As the students were in process, the dancers became more aware of the necessity to yield materiality and form. Several began with a more ‘aggressive’ gesture and attitude towards the garment/costume, such as the dancer in Group A, but in time realised that more subtlety and a delicate lightness was needed to be embodied for the solo to be woven as a whole. Others, as in Group D, began working choreographically in a literal sense, moving in the garment/costume to reveal a more commonality of wearability. However, through the group’s process, the dancer began to discover a myriad of inventive modes of dialogue, acquiring a mature and imaginative choreographic voice as the materiality and design of the garment/costume transformed into a second skin, scales, a terrain to navigate in, as well as webbed rib-like cage.

The Dance student from Group D articulated beautifully in her journal:

“The project had challenged my creativity as the garment is ever changing due to the constant expansion of the slits and the size of the garment….I was able to morph into ideas of ‘escape and release’ which forms my intention...the idea of tangling and detangling, interweaving, wrapping and rolling, coming in and out of the garment, falling (myself and the garment) and of course, folding, in a sense that I would fold my body or the garment to explore and achieve the choreography.”

4. Conclusion

“To learn, habit needs a perturbation – a nudge to the body-context status quo. This nudge comes as a novel stimulus to the brain. It awakens and enlivens neural processes, enabling plasticity and learning. Perturbations move the perceiver away from the familiar toward new possibilities for action.” (Batson, 2014, p.131)

Our personal pedagogy and way of working was also impacted in the process, as we attempted to expand the vocabulary of the project in its fourth year. After every cycle, a new set of restrictions- or perturbations- arose to sharpen the qualities that were important for the project: form, affordance and possibility for movement. The stripping of colour to white in the second cycle allowed for clearer shapes to arise. In the third cycle, students were introduced to the thematic stimuli of minimalism, which further abstracted their visual references. For the fourth cycle, an additional abstraction in the origami technique allowed students to prioritise play and form over attainment of the perfect technical folding technique.

The project expands not just the students’ but the lecturers’ pedagogic methodologies and language, providing an expansive platform for emergent creativity in design and teaching. In consultations, it was important to remind fashion students to privilege the dancer’s movement over the aesthetics of the garments. To communicate with students, more bodily practices were utilised. In Figure 25, a lecturer prototypes in miniature to communicate spatial ideas to the students. In Figure 26, an example of a fashion lecturer physically inhabiting the toile to have an embodied understanding of its physical limits. The language of
communication of ideas extends to body/movement language and embodied understanding of design.

A somatically informed pedagogic practice stimulates greater agency and invention. Through collaborations such as this, we can begin to open the students to new avenues of making. By collapsing pre-conceived, siloed techniques and disciplines, other modalities and languages have space and support to arise.

Figure 25-26. These images show the different modalities and ways of communicating that the fashion lecturers also begun to employ. In Figure 25, a fashion lecturer utilises miniature models to communicate spatial ideas and in Figure 26, a video by a student shows a fashion lecturer inhabits one of the garments to understand the physical experience and affordance the costume enables.

References


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Acknowledgements: We would like to thank our colleagues at LASALLE College of the Arts, our students and the National Gallery of Singapore for their generosity, resilience and creativity.
Towards a new design culture of scientific production – Innovating the formats of scientific publication of design

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Abstract | In Italy, the normative system of evaluation of the quality of scientific production and publication of design research is becoming articulated and complex. Moreover, the cultural dominance of western and Anglo-Saxon centred vision and standards need to be complemented by a plurality of approaches and narratives on design. Many trends are permeating internationally the design field, and in particular, the ones related to digital transformation. In this respect, one of the contemporary challenges that design research is undergoing is to reach an authoritative, high impact and effective scientific production. Starting from a collection of cases and practices from different disciplines which thoroughly summarizes the state-of-the-art, this paper, describes an ongoing research project aimed at innovating the design cultures of scientific production and publications, presenting the exploration of them according to a proposal of an innovative publication lifecycle. Finally, it proposes an envision of a format of scientific publication in design.

KEYWORDS | SCIENTIFIC PRODUCTION, PUBLICATION LIFECYCLE, PUBLICATION FORMATS, COMPOSING, ECOSYSTEM
1. Introduction

1.1 Background

The topic of academic publication which, although in a different way, has always played a central role in the different historical periods of scientific divulgation, today is going through a moment of profound change. Publication is central to the making of science. Epistemologically, it is a critical step in the making of publicly accepted knowledge; sociologically, publication has become the measure by which researchers are evaluated for tenures, promotions, and grants (Fyfe, 2000). Most of the features we associate with the modern scientific journal – including originality of research, self-authorship, refereeing procedures, and standardized rhetoric and structure – were nineteenth-century developments, while big profits, the use of English as the international language of science, and the emergence of professional bodies for managing editors and publishers are largely twentieth-century phenomena (Baldwin, 2018; Moxham & Fyfe, 2018). Until the mid-nineteenth century, original research could be first published in a wide variety of places. Reports of new research findings might sit alongside book reviews and letters to the editor in a magazine devoted to natural philosophy or amid discussions of philology, antiquarianism, and moral philosophy in learned journals (Peiffer, et al., 2013). By 1790, at least a thousand scientific and technical journals had been established (Kronick, 1976). Around a quarter of these were the transactions of learned academies and societies, but the majority were independent, set up by printers, booksellers, or editors with the hope of turning a profit from the learned and/or public culture of science. As before, most of the new periodicals were short-lived. But by the end of the eighteenth century, a handful of editors demonstrated that, with the right commercial skills and a good network of contacts, an independent journal could be successful (Fyfe, 2000). Recent attempts to estimate the number of academic (not just scientific) journals globally suggest that there may be around a quarter of a million – but in 2010 perhaps only 24,000 of these were scholarly peer-reviewed journals (Larsen & Von Ins, 2010). The proliferation of scientific journals has reflected the emergence of new specialisms, the establishment of new societies, the growing number of researchers seeking to build careers, and the global expansion of the scientific enterprise in the late nineteenth and twentieth centuries, but the expansion of scientific research had placed strains on these publishing programs, with more research papers meaning more expense. Elsevier and Pergamon Press took advantage of the post-war boom in science funding – including library budgets – to increase circulations of their journals and to raise the prices charged to institutional subscribers (Fyfe, 2000).

In recent years the body of design research develops and expands, and it is interesting to examine the publication patterns of institutions and researchers publishing in the field of Design. Particularly, the scientific publication in the field of Design reflects some factors related to the recent valorisation of the disciplines, but also the richness of approaches,
fields and applications combined with a proactive and often innovative attitude that design is used to propose in terms of content and visualizations.

1.2 Relevance

The digital transformation is also permeating the field of academic publication in design on a global level: the concept of phygital (the interaction between the physical and digital world) blurs its boundaries and research areas, introducing new ways of intervention. In this context, the scientific production and diffusion of design, especially in the international sphere, are taking on new forms and objectives, becoming increasingly unstructured, broad and, thanks to the digital environment, rhizomatic, with the related strengths (e.g. accessibility) and weaknesses (e.g. reliability).

For example, with the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003) the open access paradigm has acquired great importance.

Paradoxically, the Article Processing Charge (APC) system of peer reviewed scientific journals (WOS, SCOPUS), increasingly recognized as a quality criterion, remains the responsibility of the authors. Meanwhile, especially in Italy, the regulatory system for the evaluation of scientific production is becoming more and more complex, due to procedures often conflicting at different institutional levels (university criteria, VQR, ASN), in a framework of actors (ANVUR, SSD scientific boards) equally varied.

These conditions have a considerable impact on the circulation of high-quality scientific production and limit the possibility of innovating its methods and formats; one of the challenges is to enable new spaces for experimentation in order to achieve authoritative, high-impact and effective communication, pursued with a multiscale strategy, which guarantees scientific productivity and extended impact (e.g. the third mission), while maintaining rigour and authority.

The European Community’s Future of Scholarly Publishing and Scholarly Communication report written in January 2019, proposes a vision for the future of scholarly communication; it examines the current system and its main actors. It considers the roles of researchers, research institutions, funders and policymakers, publishers and other service providers, as well as citizens and puts forward recommendations addressed to each of them. In structuring the context of reference recalls that the whole of the scholarly communication exists to offer researchers the possibility of participating in a distributed system of knowledge that approximates H. G. Wells’ vision of a “world brain”, also remembering how, starting in the ’80s, the whole research ecosystem has invested the metrics with great power: overall, researchers, funders, and university assessments have come to rely too much on the evaluation function of scholarly communication as structured by the JIF.

For the UE, researchers and their needs must be put at the heart of scholarly communication of the future. This scholarly communication system must support and facilitate the use of knowledge and understanding for as wide a range of participants as possible, with as wide a
range of purposes as possible, including its integration into new lines of investigation and new forms of education, according to the principles of: Maximizing Accessibility, Maximizing Usability, Supporting and Expanding range of contribution, Building a distributed and open infrastructure, working for equity, diversity and inclusivity, building community, promoting high-quality research and its integrity, facilitating evaluation, promoting flexibility and innovation, investigate cost-effectiveness (European Commission, 2019). In this context, the European Community hopes that working partially against this trend new technologies and services now enable researchers to take back some control over some elements of publishing, in particular registration and dissemination. They can, for example, ensure attribution to their own work by posting versions of their outputs on web-based and open access services such as an institutional repository, or a thematic repository such as arXiv (Cornell University, 1991). In doing so, they maximise dissemination and accessibility to their own work by themselves.

Universities have always been key actors in scholarly communication in the context of their research and educational missions, so they are both co-operative and competitive and seek to maximise the dissemination and impact of their research but, in the last fifty years, they have partially and gradually disengaged from their roles as publishers. Digital technologies, especially in their free and open form, allow them to design, maintain, evolve and control their own dissemination tools.

In this the design discipline can be a pivotal field for the experimentation and discussion of new scientific publication formats.

A recognized academic community such as the Design one has the responsibility to discuss and innovate the contexts in which scientific dissemination and dissemination are produced and made accessible, and to propose a vision characterized by its recognizable design culture.

1.3 Related work

Since it is a work in progress research project, this section does not claim to be exhaustive but simply presents the context outlined in the analysis path, deliberately excluding from this review platforms and events relevant but mainly informative (e.g European Researchers’ Night) and technical-instrumental approaches: many resources and tools are available online on how to develop effective dissemination strategies, especially in relation to research findings of projects.

By exploring the digital environment many bottom-up initiatives of dissemination, addressing visual qualities and aesthetic experience can be observed, having a potential of development in term both of novelty and authority with vantages (accessibility, contributiveness…) and sometimes disadvantages (authoritativeness, reliability…).

Among the major changes that have occurred in recent decades in the field of scientific publication, the open access movement has disrupted the way scientific knowledge is
Towards a new design culture of scientific production – Innovating the formats of scientific publication of design

distributed. Due to excessive commercialization and price increases, Open access scholarly journals enable users from throughout the world to access information freely, as these journals can be freely accessed online without any legal, economical, or technical barriers. (Kim, et al., 2018)

The theme of new models and tools for scientific dissemination, in relation to digital transformation, besides being conspicuous on-line at a popular and technical-practical level, is widely debated in literature. As example Tenopir and King on the subject of e-journal propose “new, electronically mediated peer review models” while some scientific fields, such as medicine, reflecting on a scenario in which traditional metrics are flanked by the more recent ones of blog e social media based on the availability of sources and accessibility to dissemination channels on effective digital infrastructures. (e.g. Jama network).

A good reconnaissance is offered to us by Kim, Chung e Lee who outline a scenario according to which new formats of articles include graphical abstracts, interactive PDFs, the application of semantic enhancements, and the utilization of research data, social networking sites, such as Mendeley (Elsevier, 2007) and ResearchGate (Fickensche, 2008), have become common sites for information exchange; altmetrics have been adopted to complement traditional journal metrics and PubMed Central, F1000Research and KoreaMed Synapse have been introduced as innovative full-text scholarly journal distribution systems. With their work they have outlined a number of current trends in scientific publication which analyses new formats of journal articles (e.g. JAMA by American Medical Association and Nature Podcast by Springer Nature), ways of improving semantics in scientific publication, the use of research data and academic social networks (e.g. ResearchGate, Academia) and new distribution systems (e.g. PMC, F1000Research, Frontiers).

In this context, therefore, even the major actors are moving to try to accompany this process of change. In November 2010, Springer announced a new product line – SpringerBriefs (Springer, 2011)– for works between 50 and 125 pages in length. SpringerBriefs are concise summaries of cutting-edge research and practical applications across a wide spectrum of fields; then the following year, 2011, saw the launch of Princeton Shorts, brief selections taken from previously published influential Princeton University Press books and produced exclusively in e-book format.

In 2012 was the turn of Palgrave Macmillan, that launched Palgrave Pivot (Palgrave & Macmillan, 2012), an innovative format for scholarly research offering a new mid-form format for publication.

The discipline of design is relatively young but has rapidly matured in recent decades. This is evidenced by an increase in the number of design journals and dedicated design conferences since the late 1980s, and by an increase in the amount of attention being paid to design in journals from other academic fields like innovation and marketing (Gemser & de Bont, 2016). But as well explained by the authors, a particular criticality also emerges in this area: on the one (Opening Science, 2012) hand there is cultural production that can be valorized in
terms of scientific production, on the other hand there are quality content that cannot be technically valorised, but that builds reputation and identity. It is therefore appropriate to question about the new methods of production and representation of design knowledge and, above all, about overcoming the limits of exclusively textual models of dissemination, which sometimes fail to be flatly effective.

1.4 Research questions

The ongoing research project is aimed at innovating the design cultures of scientific production and publication, starting from a structured presentation of a collection of relevant case studies.

The underlying research questions concern the role of innovative practices in the scientific publication process, the identification of those stages in which the traditional practices could be released and the envisioning of communication strategies for making innovative practices techniques available to the design scientific community.

The project is based on three main intertwined hypotheses, that are:

- The lifecycle of a scientific publication is going to be more and more circular and iterative instead that a linear one (from data collection, to authoring, peer review and publication and dissemination): the co-creation and co-contribution paradigm are already established in some works, but the circulation, use of re-use of scientific contents can be further promoted and improved, maintaining authorship. For doing this, lifecycle phases need to be individuated and empowered in order to be transformed/enriched in innovative functionalities performing a multi-layered and growing publication (i.e.: sharing, evaluation, reuse etc.);
- The size of a scientific publication is going to/can change during its lifecycle(s), due to different use, re-use and contribution, allowing to add different layers of content;
- In both the above-mentioned process, traceability of authorship and assessment of contents needs to be pursued in order to maintain rigour and accreditation.

2. Methods

2.1 Approach

The research has been structured in five phases according to the main research questions.

1. The first phase of the presented research refers to the contextualization and framing of the problem, considering both, inquiries related to the innovation in the scientific publication process and ground-breaking case studies;
2. In the second phase, attentive scrutiny and *classification of existing innovative scientific publication formats*, coherent with the above-mentioned hypotheses, have been performed;

3. The third phase is devoted to the envisioning, design and prototype of a new format that will further develop the concept of open lifestyle and size of scientific publication in the field of design, and eventually other disciplines;

4. Finally, the fourth and fifth phases are respectively dedicated to the evaluation of the prototype and its dissemination and spreading across the scientific community.

The paper will exhaustively present the first two phases.

The research involves ten researchers coming from different fields of Design.

### 2.2 Evaluation Matrix Design

**Evaluation Criteria**

The first phase, contextualisation and framing aimed at defining the common elements of innovative practices, has led the design of a shared spreadsheet where all the innovative case studies would be collected in a matrix.

Besides straightforward classification parameters such

- Title of the project;
- Year of publication;
- A brief description;
- Disciplinary field;
- Type of accreditation;
- Type of media supported;
- Format;
- Contact person;
- Management;
- List of keywords.

The size and life-cycle stages categories were introduced being those parameters themselves results of the research. The introduction of those tailor-made categories has led the researcher to classify all the case studies according to the first phase of the research.

**Size**

The *size* parameter refers to the dimension of the product, according to the type of elements which contains. It could be a single item, an ecosystem or a platform. A *single item* is a single, stand-alone unit with well-defined borders even if composed by a different type of media: for instance: a book, a website, an application (National Science Foundation,
An ecosystem is an independent system of contents, with well-defined borders and structured by single and discrete units (Howard Hughes Medical Institute, 2011). Finally, a platform which is intended as a service of access, research, consultation and or production of contents (JoVE, 2006) (Figure 1).

Figure 1. The size evaluation criteria.

Publication lifecycle

The publication lifecycle which is not innovative per se (Björk, 2005) is intended as a recursive chain of steps aimed at the final publication. As already introduced, the aim of the project is to transform the stages in specific processes for innovating the publication, both in the analysis of case studies, and especially in the new publication format prototype.

Indeed, during the case studies classification, the need to identify at what stage in the publication cycle the innovation had been introduced emerged; for that reason, has been added in the classification parameters.

Initially, the proposed publication life cycle included ten separate stages, which have been inferred from the analysis of the literature.

Innovation in scientific publishing at the level of exploration, means designing artefacts able to help researchers in finding articles correlated to their research interests and for some years now it has been managed by machine learning algorithms such as natural language processing which allow better customisation of interests. Moreover, some platforms allow users to save and archive material to be cited later.

At the stage of sharing, are involved platforms and websites helping users to share in-progress research. Micropublication (Micropublication, 2019) is an example such as (Cornell University, 1991) repositories which allows a direct conversation with other researchers.

Moreover, there are some examples at the connection stage, which is strictly correlated with the sharing phase. The stage of connecting refers to the dynamics adopted to connect with
other researchers. Academia (Academia, 2008) and ResearchGate (Madisch, 2008) are well-known and striking examples.

Then, especially when dealing with collaborative articles, innovative practices of writing articles are required. CodeOcean (CodeOcean, 2017) and Overleaf (Overleaf, 2014) are only two of the existing dozens.

Between the writing and publishing stage, a critical and underestimated moment is the one dedicated to the composition of contents. Composing means articulating and augmenting, giving the user the opportunity to increase the value of the research. This stage, more than the others, is crucial in the design activity. The naming itself of the stage refers to that design task which embeds the selection, structure and communication of the scientific contents.

The publishing stage includes all the tools and platforms aimed at accelerating the publication of peer-reviewed science. Moreover, the reading stage includes systems and tools which allow improving the reading experience. The annotation tool Hypotheses (Hypothesis, 2013) is one of those examples. The process of evaluation has been subject to innovations too, being open peer reviews increasingly common. The re-using stage covers tools and platforms aimed at tracking scientific contributions and ensuring that the original research is reproducible. Finally, some other cases, focus on the innovation of the assessment stage, which best practice is the assessment and check of the impact of scholarly research.

**Evaluation Matrix**

Furthermore, according to the ten evaluation criteria aforementioned, an evaluation matrix of case studies has been designed in order to systematically and collaboratively store the outstanding cases in the literature.

From a list of more than 400 projects, presenting innovative practices in the publication lifecycle, 50 relevant cases have been chosen as more relevant to our research, taking in consideration their level and stage of innovation, trying to cover each publication stage with a balanced number of examples.

Finally, the latest version including the most ground-breaking 20 cases has been made.

The evaluation matrix, which will be commented and explored in the Results session, will be the starting point for the third phase of the research project.

**3. Results**

As we mentioned above, the paper is presenting the preliminary results of ongoing research.

In this session
The evaluation matrix;
The updated publication lifecycle scheme;
The Prode identity and the website-archive.

will be presented.

As we mentioned in the Methods paragraph, the publication lifecycle stages have been exploited for classifying case studies. The majority of the presented projects is not specifically tailored for a specific discipline or field but there are some cases such as Jove (JoVE, 2006), Distill (Distill, 2016) and Parametric Press (Matthew Conlen, 2019) that are discipline-oriented and very effective. By browsing the matrix (Figure 2), it’s clear that the discipline-oriented cases embed innovation in the stages of writing, composing and publishing which lies at the heart of the cycle. Indeed, the way contents are organised, mixed, structured and augmented must be peculiar to each field of research. If the literature offers examples where ad hoc platforms have been created for medicine, biology and computer science there still seems to be room for experimentation in the Design field.

Parametric Press (Conlen, 2019) and Distill, are built atop Idyll (Heer, 2018) an open-source toolkit for writing interactive articles. Even if geared towards computer science, data visualisation and social science topics, both of them offer to the user the possibility to build interactive views and customise digital content — which is a feature to take in consideration when moving to the Design field —.

One of the main outcomes of these phases was the identification of three most promising stages from the publication lifecycle the writing, publishing and composing from which to start designing the final prototype. Indeed, giving the researcher the possibility to customise interactive digital content, is the stage of the publication lifecycle named composing. (Figure 3)

As a result of the first two phases, a website has been designed, in order to both share the research process and present the ongoing results: at the end of the research, the website will be the main touchpoint providing a framing and contextualisation of the research, an easily updatable archive of projects and the main point of access to the final prototype.

The website has been designed in order to share the results among the scientific community of the design field. For that reason, the name of the project is PRODE, which means PRO DESign, Scientific PROduction in DESign.
Figure 2. A matrix showing the most relevant case studies collected. For browsing the complete matrix check the website.
Figure 3. The publication lifecycle according to the case studies analysis. Highlighted in pink the stages of the publication lifecycle identified as promising.

Until this moment the website is structured in four pages:

- The home page: where the research project is presented;
- The about section where the produced material and the aim of the research is explained;
- The news page where activities are shared with the community;
- The case studies area, that, serving as an archive, collects and shows the analysed and relevant case studies.

In the case studies page, projects can be filtered by publication lifecycle stages through a dropdown menu. One of the most important features of the website is that the case studies area is easily editable, being directly connected to a google spreadsheet which effortlessly updates data. The spreadsheet feeding the website is organized according to some of the criteria of the evaluation matrix:

- the title of the project;
- a relevant image;
- the year of publication;
- the brief description;
- the size;
- the type of product;
- the field.
Towards a new design culture of scientific production – Innovating the formats of scientific publication of design

By doing so, the website becomes both an explorative tool and a logbook for the research team.

Figure 4. The Home page and the About section of PRODE. https://produzionescientificaindesign.github.io/Prode/

Figure 5. The case studies page. On the left a view filtered by the “composing” stage. On the right, a single case study. Users can filter data and explore single projects by reading the short description or visiting the web pages.

4. Discussion

The paper mainly highlights and distils the theoretical contribution of the presented ongoing research. The practical contribution, dealing with the envisioning and design of the prototype is still in its embryonic phase and, for this reason, it will be discussed later.

The definition of the publication lifecycle and the identification of writing, composing and publishing as the most promising stages are the main theoretical contributions of the paper. Specifically, the composing phase could be linked to common design practices and become the most encouraging one for the development of the research.
The design discipline can be a pivotal field for the experimentation and discussion of new scientific publication formats, so this is the reason why, after designing a prototype format, the aim is to have a discussion with a seminar to present the project to design-field researchers and scholars and to publishers to ask to try it and gain feedback as well first new formatted developable science.

The final output will be a prototype of a format that through scalable and implementable parameters will offer different models of visualization and units of organization of scientific content, allowing to experiment in more traditional formats, multimedia and multi-channel dissemination and sharing.

As first experiment, it is intended to draw on content already existing in the department and provided by the community itself, according to availability and interest.

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Acknowledgements: The project is funded by FARB 2018 – Fondo dell’Ateneo per la Ricerca di Base.
Translation Design for medicine leaflets. Research and innovation

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Abstract | In the context of Design for health there are many complexities and challenges that designers have to face. In this paper we will analyse the main characteristics of a specific communicative artifact “the medicine leaflet”. The goal is to frame it on the basis of its textual and paratextual nature, but also to reflect on its multiple critical aspects. This analytical perspective is strictly connected to Communication Design and Information Design, but more specifically to Translation Design conceived here in term of a “transformative design activity” aimed at reformulating, transferring, transcoding or, more often, transmuting a source text into a final one. Through a series of case studies, we would like to highlight the role of the translator-designer in generating new interpretations, contaminations, simplifications or expansions of content that improve the communicative access to the medicine and consequently facilitate the relationship between the various reference interlocutors (doctors, nurses, pharmacists and patients of all kinds).

KEYWORDS | MEDICINE LEAFLETS, TEXTUALITY, INNOVATION BY TRANSLATION DESIGN
1. Introduction

This paper is based on the research project Care for care! Shaping medication to avoid treatment inaccuracy. Design culture between identity, communication and use handling funded by the Politecnico di Milano within the University Funds for Basic Research. The theoretical framework, defined as a perimeter for the analysis of pharmaceutical products, takes up the theoretical issues and the most consolidated methodologies of the discipline. In particular those related to the relationship between form and recognizability; form and understanding of the product; form and ease of use (affordance); those related to the interface of products and the interaction between user and product (interface design, interaction design); those related to the role of past experience and experience design; those related to perceptual aspects that activate the user’s sensorial system in cognitive processes; those that refer to the analysis and design of the product based on the user (user centred design, design for all); those that focus their attention on the product-system and the product life cycle with the specific needs that characterize the different phases and the plurality of users involved; those that draw on theoretical reflections and design experiences on packaging design and on the role of info-communicative surfaces in guaranteeing access to the product (access design). This contribution aims at observing the package leaflet of medicines to highlight their properties, their limits and evolutionary possibilities, starting from a reading of their primary components.

2. Complexities of the package leaflet

The package leaflet for medicines is a polyalphabetic communicative artefact of a paratextual nature, which presents a serious underlying ambiguity. As Di Pace (2019, p.9) observes, on the one hand it constitutes a model of accessible textuality, while on the other it is characterised by a highly technical and specialised sectorial language, which is often not easily understood by the primary target audience (heterogeneous in terms of age, geographical origin, levels of education, and specific skills).

The nature of the medical lexicon is hypertrophic: it is in fact a linguistic system, which has become embedded over time, contaminated with other scientific fields such as chemistry or pharmacology. It presents a type-related variety of terms that can be easily accessible to highly specialised medical practitioners, but which are particularly incomprehensible to ordinary patients.

In fact, it is a matter of an articulated and hypertrophic linguistic system, a sort of "anti-language" (Calvino, 1965), whose main characteristic is the so-called "semantic terror", that is, moving away from words with a clear and comprehensible meaning, in favour of imprecise or completely indecipherable terms. The issue becomes more complicated when the users are foreigners and their understanding of the contents of the package leaflet needs to exploit a series of translations carried out by inexperienced linguists, or, in other cases,
performed with the use of computer programs; in both circumstances the risk of error is very high; indeed, there have been numerous incidents of this kind. As an example, there is the case of a Chinese woman from Prato who, due to a misinterpretation by the translator, risked killing her six-month-old daughter with a dose of antihistamine forty times higher than prescribed; or the case of a Spanish-speaking man in New York, who, owing to a machine translation, took the same hypertension pill eleven times a day, (Capuano, 2013 p.58).

This complexity is flanked by additional extra-linguistic or extra-textual issues: the readability of the written text (the size of the characters often makes it difficult to read); the information density of the text itself; the de-personalisation and absence of a hierarchy of contents (lack of emphasis on warnings and the risks that medicines entail); the lack of textual distinction (with different distribution and hierarchy) between information intended for the patient and that reserved for the doctor; the problem linked to communication media (size of the leaflet, usability and durability of the paper that is used).

Further complications arise from the numerous constraints dictated by the legislative aspects defined by the competent authorities such as the EMA, the European Medicine Agency, AIFA, the Italian Medicine Agency, the Ministry of Health or the FDA, the American Food and Drug Administration.

Given these premises, we try to understand how the package leaflet can be improved, taking into account the different types of medicines, categorized as: OTC medicines (over-the-counter or self-medication medicines with immediate visual access; also known as GSL - General Sales List); PoM medicines, which are prescription-only (and which cannot be advertised) and finally P (standing for Pharmacy) medicines, namely those not requiring a prescription, but not over-the-counter (sold on the pharmacist’s advice), (Di Pace, 2019, p.32).

3. The package leaflet as text and paratext

The leaflet is also referred to in Italian as ‘bugiardino’, meaning ‘deceitful’. As de Pace reminds us (2019, p. 15) among the various explanations, the most credible interpretation of the origin of this term concerns the medical field and more specifically the recognition of the omission of a series of information concerning the negative aspects of taking a medicinal product.

More recently, as stricter regulations have come into force, the bugiardino has become a more articulated informative/prescribing text, in which a series of formulations remain inaccessible and scarcely interpretable to the common patient.

We can conceive of the bugiardino as “text”, that is, “an expressive medium capable of conveying certain content with its specific features, recognisable boundaries, and internal procedures” (Marrone, 2010, p.5). But we can also define it as “poly-alphabetic text”
because it is characterised by the coexistence of several registers, namely the verbal and visual aspects, but also the tactile aspect (when we refer in particular to the qualities of the paper).

The cooperation between verbal, visual and tactile aspects in the package leaflet requires different decoding strategies. The three systems do not operate autonomously, but support each other, transforming the leaflet into a ‘hybrid textual model’, directed towards reading and interpretation.

Looking at it from another perspective, the package leaflet, as a text, must not disregard its relationship with other texts that surround it: the medicinal product as the main text, the reference label, and the packaging.

In these terms the package leaflet can be better conceived as a “paratext”, i.e. a text accompanying a main text, which has as its purpose the most relevant and conscious reception and consumption of the pharmaceutical product itself.

As Genette affirms (1989, p.4), the paratext constitutes a threshold, an area not only of transition, but also of transaction: “the privileged place of a pragmatism and a strategy, of an action by the public”.

More in detail, the factors that qualify it can be traced back to:

1. Its **location**: the package leaflet is placed near the main text (the medicine), or is an integral part of it;
2. Its **temporal status**: it is a short-lived text, to be updated over time in terms of content, which may last as long as the life cycle of the medicinal product, or it may be worn out, lost or confused among similar things;
3. Its **substantive status**: it is itself a text, which can be characterised by several codes and different levels of iconicity, material or factual aspects that determine its reception;
4. Its **pragmatic status**: linked to the specificities and nature of its recipients;
5. The **illocutionary force of its message**: in other words, the performative power of the verbal/visual content, which may or may not include forms of manipulation of the recipient.

### 4. Organisation of the contents of the package leaflet

In terms of content, the leaflet is an example of “highly binding” textuality (Di Pace 2019, p.25), modelled on technical texts (such as instructions for use), which leave the recipient no freedom of interpretation or subjective assessment of the content.

A further point of reference is the European Medicine Agency (EMA), which has set up a group of experts (the Working Group on the Quality Review of Documents - QRD) for the development of the *Guideline on the readability of the label and package leaflet of medicinal products for human use* (1998, subsequently revised in 2009). The Single Medicines Commission has developed further guidelines in order to make package leaflets for over-the-counter medicines, which can be sold without a prescription, more understandable. The guidelines are flanked by initiatives launched by AIFA (validated by the European Agency EMA), which have created an institutional Pharmaceutical Database in support of citizens and healthcare personnel.

The QRD template divides the contents into six numbered paragraphs, defining them on the basis of a question/answer method:

1. What is X and what is it for;
2. What you need to know before taking X;
3. How to take X;
4. Possible side effects;
5. How to store X;
6. Package contents and other information.

It should be further specified that this is a general reference, which is subject to further amendments and specifics. It is useful to report here the indications quoted by AIFA, which, in the development of the different paragraphs, suggest avoiding the use of impersonal or passive verbal forms; the use of technical language; any reference to unclear terms; the use of abbreviations, acronyms and symbols.

Further indications suggest the use of short sentences with fewer than 20 words, and a low degree of subordination (bulleted lists); direct and active style; expressions close to the common language (technical terms in brackets); explanation of anatomical names of organs and clarifications; and pictograms alongside verbal information.

### 5. Graphic-visual elements of the package leaflet

The graphic-visual elements of the package leaflet are regulated by the European Commission, *Guideline on the Readability of the Labelling and Package Leaflet*. The 2009 version, (Section A: Recommendations for the Package Leaflet) stresses the need to maximise the number of people who are able to use the information (by recipients we mean sighted people, the elderly, children and adolescents, those who cannot read or the visually impaired).

To this end, it invites pharmaceutical companies to recognise the specific role of designers in the visual reorganisation of content and in conducting tests aimed at gathering feedback from the target audience.
Figure 1. Structure of a medicine leaflet of a drug that does not require medical prescription.
Very briefly, the recommendations concern:

1. **Text size and typeface**: we suggest the use of readable fonts that are unambiguous when reading letters or numbers. The font size must be at least 8/9 points (as measured in Times New Roman), with a space between the lines of about 3 mm. There should be a change in size, or the text should be highlighted, to bring out relevant pieces of information (e.g. for headers). We do not recommend using capital letters or italics (italics should only be used for Latin terms);

2. **Layout and organisation of the information**: the use of a right or left flag layout is discouraged. Line spacing must be about 1.5 to ensure readability. The contrast between the text and the background is also a relevant factor, as it is decisive for the accessibility of information. The same applies to the weight and colour of the paper, the size, weight and colour of the typefaces. The use of background images is discouraged because these can interfere with the text, resulting in decreased legibility. The text can be organised in columns delimited by a space or lines in between the columns. A differentiation between columns can be useful for multilingual texts;

3. **Titling**: this can be in bold or in a different colour from the main text and must be delimited by consistent spacing above and below. Other text differentiation strategies (numbering, bullet points, colour, indentation, font and size) can be used to aid the recipient in reading the text. Subtitles may also be used if they are important for a medicinal product (e.g. information on excipients);

4. **Print colour**: typefaces can be printed in one or more colours to make the text stand out from the background; differences in size or colour make the text more recognizable and memorable. Differences in colour, or colour intensity may be used to highlight particular warnings;

5. **Paper**: the paper weight should be such that it is not transparent, which would make the text illegible, especially when it is small; even coated paper is not recommended because it reflects light and makes the information difficult to read. Uncoated paper is the best type to use. Paper folds may or may not make the contents easier to read;

6. **Use of symbols and pictograms**: the use of images, pictograms and other graphic elements is permitted, in order to aid in understanding the information, but these must exclude any element of a promotional nature. Their role is to enrich the text by highlighting functional aspects or details also reported in textual form. The use of pictograms should be tested before applying them on package leaflets because they may have different meanings depending on the cultural context.

In reality, pharmaceutical companies do not fully comply with these recommendations. As noted by Karel van der Waarde (2016, pp.73-91), their major limitation is linked to the fact
that legislators do not have an in-depth knowledge of the skills of communication designers and their ability to organize information as a whole, i.e. taking into account perceptive, semantic and pragmatic aspects that go beyond styling.

In general, there is a widespread prejudice that the communication designer is only concerned with the visual appearance of the package leaflet, and to the writing systems, in a limited manner.

According to this vision, the designer’s intervention is reduced to designing only part of the information to support subsequent testing operations.

Greater involvement of visual communication professionals is desirable, in order to make the improvements that need to be made to the leaflets (beyond the official guidelines) more objective and relevant. It would be extremely useful to open up a dialogue between the various parties involved: the authorities that legislate, operators in the sector, pharmaceutical companies, and those who have the necessary skills to modernize this type of communication artefact.

6. The package leaflet and translation: recurring translation models

An initial observation and collection of case studies has allowed us to identify a series of "translation models": in some case a radical rewriting of contents and their reconfiguration, in others an evolution of formats and/or channels of dissemination. These summarise the transformations in progress and the widespread effort to make the package leaflet more functional to the needs and limitations of patients and professionals.

The reference to different modes of interpretation is inherent in the very nature of translation, but also "the inclusion of the other", beyond the pure transpositions of the meaning or signifier. Here we try to summarise the most representative models in order to offer an overview of possible interventions.

The first form of translation of the leaflets that is under consideration is endolinguistic translation (or reformulation or intralinguistics), namely the translation of content within the same linguistic system.

We are referring to true "rewriting", aimed at a greater clarification of some technical terms, or at reducing the semantic density of particularly complex sections. As De Pace (2019, p.112) observes, with reference to the exemplification of a well-known prescription drug, the rewritten version loses the aseptic nature of the technical information which is converted into a predicative and thematic structure in which the name of the drug emerges.

The typographical translation of the leaflet falls into the category of endolinguistic translation, and involves a series of rewriting operations aimed at a more rational use of the
elements of interest: print formats, the size and arrangement of text columns and images, the organisation of hierarchies of titles, subtitles and captions (macro typography), but also aspects related to micro typography, which refers to the individual elements related to the letters, the space between letters, the word, the space between words, the line and line spacing, and the text column (Hochuli, 2018, p.7). Taking these factors into account means working towards achieving greater usability and readability of the text, but also optimising page space and consequently lower paper consumption.

Through a series of tests with different types of users, David Patrick and Samuel Dickinson (2010) identified a combination of factors that improve the interaction with the leaflet:

1. A horizontal layout allows greater management of text units;
2. Shorter text blocks ensure better use of the content;
3. A reduction in text density (and therefore a better balance between the white space and text sections) facilitates reading and comprehension;
4. Breaking down the text into separate sections (e.g. between the dosage section and the side effects section), speeds up the retrieval of information;
5. Logical uses of typography, (of lists, spacing and hierarchy of text, or size of titles) are not negligible aspects on which readability and communicative access depend;
6. Highlighting parts of the text (either by using bold or increasing the size of the text), is an additional element of orientation for the recipient.

An additional project intervention is intersemiotic translation, which implies the transfer of sign systems within other sign systems. This is in fact a change of code, which in the package leaflets takes the form of an extraveral transfer into images, photographs or pictograms (Article 62 of Directive 2001/83/EC suggests that verbal forms should be accompanied by the use of illustrative images or pictograms).

The examples are notable, and equally numerous are the configurative modalities of different iconic levels: from schematic representations in black and white, to more detailed forms of representation (involving the use of colour), as well as the use of photography.

Figure 2. Visual representation of packaging use.
In terms of content, the images visually translate the instructions for use; they are found, in particular, in medicines that have complex devices or procedures for consumption, or that require specific storage methods.

Figure 3. Visual representation of packaging characteristics and of the medicine consumption.

Other images, taking up the codes of the scientific illustration, underline the effectiveness of the active ingredients of the medicinal product; for example, by depicting the phases related to the elimination of bacteria.
In other cases, in particular in the package leaflets of over-the-counter (non-prescription) medicinal products, we see the use of more evocative or decorative images, or photographic images for advertising purposes to represent the different formats of the medicinal product itself.

The translation of content into pictograms is particularly significant when the reference context is multilingual, or the target audience includes: people who are not literate, the elderly, or people who are visually impaired. In general, the pictograms in package leaflets
accompany the verbal text and do not replace it completely (this is dictated by the relevant legislation).

An emblematic example is a series of pictograms designed by the American company USP (United States Pharmacopeia). Their purpose is to facilitate the understanding, storage and communication of general information, together with medical precautions or warnings.

![USP Pictogram](image)

**Figure 6. Example from USP pictogram system.**

With reference to this project, in 2004 a Finnish research study tested USP pictograms on a category of children between 7 and 13 years of age, demonstrating their validity in terms of immediacy of communication. However, researchers stress the need for further research into the adoption of an international system of signs at European level.

Further research in South Africa tested a series of locally-produced pictograms on the non-literate population, transforming the instruction leaflet into labels to be applied directly to medicine packaging. The use of pictograms was welcomed, because it made it easier to
understand the instructions for using antibiotics. Here too, the need to raise awareness among legislators in order to promote further research in this area is reiterated.

Translating the leaflets into Braille is in fact an intersemiotic translation, because it implies the passage from the traditional alphabetical system to a coded system of symbols, which correspond to the letters of the alphabet (specifically, it is a different combination of 6 points).

The European legislation (Article 56a of the Directive on human medicines 2004/27/EC) itself states that the name of the medicinal product must be embossed in Braille, as well as the expiry date on the surface of the packaging, and suggests the availability (on request) of package leaflets or adhesive labels in Braille, for blind or visually impaired people.

![Pharmabraille system](image)

**Figure 7. Pharmabraille system.**

Interlinguistic translation of package leaflets should generally be entrusted to specialised professionals with high-level technical and scientific knowledge and terminology. The need to have content translated into several languages, on the basis of EU Directive 2001/83/EC, has encouraged the practice of inter-format translations in the analogue field and inter-media translations in the digital field.

On the analogue side, given the multiplication of the contents of the leaflets, there has been an average increase of 30% in the surface area of the leaflets; on the digital side, on the other hand, work is being carried out on the transposition of multilingual contents through the use of QR codes and the design of dedicated applications.

In the first case, the change in size has led to an increase in the size of the package leaflet in width or length, resulting in a reduction in paper weight (to avoid excessive stiffness of the package leaflet), damage to the primary container, or jamming of the printing presses.

Other more innovative solutions include:
1. Leaflets folded and closed with a label or glue stitch (large printing surface but difficulty in folding them);
2. Small folded leaflets integrated into the label of the medicinal product;
3. Leaflets integrated into the case: i.e. sheets of considerable size, but folded several times so that they can be inserted into a pocket inside the package (in this case the production costs increase and the patient has difficulty in closing the package);
4. Bound sheets in a booklet format, (i.e. multi-sheet paperback or stapled booklets), particularly suitable for multilingual content and ideal for reading information and putting back into the package.

![Different dimensions and formats for medicine leaflets.](image)

**Figure 8. Different dimensions and formats for medicine leaflets.**

Referring to digital, the most emblematic examples of *inter-media translation* involve specific multimodal directing practices.

In 2016 Angelini created the first multilingual leaflet (in Mandarin Chinese, Arabic, Hindi-Urdu, Russian, Spanish, English, Portuguese, German, French and Italian), the contents of which can be accessed directly from the package via a QR code (available on all self-medication headache medicines). Access through the QR code can be gained from any mobile phone or tablet enabled with a special reading application.

A further innovation is represented by "Sound Meds", created by Sifi (Società industria farmaceutica italiana) in 2015. This is an innovative audio service that allows you to listen to
the information contained in the package leaflet on your smartphone or tablet. Again, in this case, the QR code, with a large audio symbol printed on the outside of the product packaging, allows access to audio content that transmits to the patient all the information necessary for taking the medicine (alternatively the patient can access a pdf of the leaflet, which can be enlarged).

![Figure 9. Sifi Sound Med system to get audio informations about the medicine.](image)

LeggoXTe is a digital multi-platform with voice assistant that allows access to the contents of Takeda medications especially for the blind and visually impaired. This application has received the patronage of the Italian Union of the Blind and Visually Impaired (UICI) and Active Citizenship. It is available in the app version for smartphones or tablets, but also in the Google Home compatible version, for seniors who do not use a smartphone. The user can ask questions via the chatbot or with the Google Assistant, who answers the questions by reading the leaflet.

7. Conclusions

This paper consists of an analysis of package leaflets and a summary of current exemplary case studies. The aim is to make explicit a series of "translation passages" whose priority objective is to facilitate accessibility to the contents and improve the functionality of the leaflet.

We believe that a series of transformative possibilities, (rewriting, transmutations, material or immaterial transfer...), can increase the accessibility to the contents, and consequently
facilitate the relationship between the different stakeholders (doctors, nurses, pharmacists and patients of all kinds).

Referring to the translation paradigm allows us, on the one hand, to reaffirm the centrality of the recipient within the design process, (differences and specificities, interpretative skills and previous knowledge); and on the other hand, to highlight the role of the designer-translator, who has the ability to go beyond the list of basic graphic rules, and the skills to give space to improved "micro-graphic" forms of experimentation: from the experimentation of typographic fonts to the research into solutions able to optimise the use of the contents and, therefore, the efficiency of this type of artefact.

![Image](image_url)

Figure 10. The LeggoXTe app makes the information contained in the leaflets of Takeda drugs available also for those who cannot read.

References


Translation Design for medicine leaflets. Research and innovation


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Visual dialects. Exploring early design sketching in various design disciplines.

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Abstract | In this paper we explore the use and rationales of sketching in different design practices such as architecture, product design and graphic design. We recognise that there are preferences, manners and specific expressions that are characteristic for different practices within design, something we label “visual dialects”. Our aim is to articulate these dialects and explore the rationales behind them. The study is initiated through a literature review to explore the field of sketching in design practice, followed by a phenomenographic study of online content in the form of “how to draw like a..”. The results showed that there is a common view on why to sketch, but a differing view on how. Conclusion is that the concept of visual dialects can be a platform for further studies of visual communication in early design.

KEYWORDS | SKETCHING, VISUAL COMMUNICATION, EARLY DESIGN, PRACTICE, MANNERS
1. Introduction

The focus of this paper is different practices of sketching in various design disciplines. The sketch is generally seen as one of the most elementary tools in the design process, yet there are few studies that have explored the implementation of sketching and rationales for different manners, tools and techniques in different fields. In general, there are preferences and specific expressions in most communities of practices (Wenger, 1998), which in our view are particularly evident within the different design practices of sketching. For this reason, we in this paper probe the idea of such expressions being referred to as ‘visual dialects’, meaning sketching having its own particular language within design, and having different dialects within different design fields. The concept encompasses manners, aesthetics and style, but also mediums, tools and techniques since it carries the language in visual communication.

According to Gleitman & Papafragou (2005), the abilities of thought and perception are the same in all humans, while language frames and filters it. In this context, language is the communication medium that creates meaning, and depending on the structure of the language, different meanings can be generated. The question is if visual expressions can correlate to language and contribute in creating frames and filters within design disciplines.

Different design fields seem to all use visual artefacts such as sketches, but have different conducts and mediums. Goldschmidt (1994) for example states expectations and contributions depends on the design culture that one subscribes to. To our knowledge there is scarce research studies concerning this. Also, Vistisen (2015) highlights that the role of sketching in visual communication is a bit overlooked in design research. For this reason, we propose a need for further explorations of the sketch and its role in design.

The overall objective of this paper hence is to explore the implementation and rationales of sketching in different design disciplines such as product design, architecture and graphic design. Drawing on a qualitative analysis of sketching videos, and a theoretical framework of sketching, communication, and sense-making in design practice, we aim to further knowledge of discipline specific visual dialects, their representation and possible effects.

2. Theories of sketching and sketches

In this paper, we define a sketch as a rough visualization that represents key features of a design, often implemented during the early phases of design. A design sketch can be described as a particular kind of drawing, different from art and drafting in its objectives, methods and values (Kirby Lockard, 1982). Also, it is proposed that “by sketching, the designer does not represent ideas held in mind /.../but creates visual displays which help induce images of the entity that is being designed” (Goldsmith, 1994 p.123). In design, sketching is generally considered the fastest method, whether you work alone or collaborate with others (Henry, 2012). In this view, a designer does not need advanced digital tools to
make a sketch, and the speed also allows for further explorations and iterations. Sketching is also proposed to have “the advantage of conveying visio-spatial ideas directly, using elements and spatial relations on paper to convey elements and spatial relations in the world” (Tversky, 2002).

In line with this, Macomber and Yang (2011) discuss sketches often being used for receiving feedback from users and other stakeholders. In this case, the sketch quality becomes important, as the medium allows or prohibits the viewer’s sense making of the designer’s intent. Clean hand drawn line sketches are in this case ranked highest, before both 3D drawings and other sketches (Macomber & Yang, 2011), probably because they allow for the viewer’s own interpretation but still make sense.

Verstijnen et al (1998) recognize the communicative act of combining and restructuring that takes place during the practice of sketching as inextricably linked to creativity. Goldschmidt (1991) refers to this as: “seeing as versus seeing that”: the medium contributes to a systematic change dialectic, through an oscillation between performance and exploration that the act of sketching contributes to. Sketching is argued to be an introspective process, providing time for reflection and eliminating the need to rely on information processing (Galle, 1992). Similar to this, Hewitt (1985) states sketches as a “medium of thought”, meaning that the practice of sketching consists of both experiential and intuitive modes, which in turn may be based on previously clearly defined methodologies or instructions. In this view, in the rapid ideation sketching the visualization becomes part of a cognitive hand-eye-brain cycle, and a positive side effect of this is that others can interact in the communication through the medium. As Van Der Lugt (2005) concludes, the sketch “starts to talk”, inviting people to re-interpret ideas.

The communicative aspects of sketching and sketches is multifaceted, as “the processes underlying the production of verbal and nonverbal behaviours are exceedingly complex” (Green, 2013 p.11). A challenge is that if only one aspect is analysed, the actual processes of communication might be lost (Craig, 1999). Hence, analysing visual communication by just taking the visual sensory responses into account can be misleading.

One definition of communication is that it deals with the creation of meaning (Fiske, 1990). When a sender communicates through some representation with a receiver, the medium stimulates sense making. This might be designers themselves attempting to make sense of fleeting thoughts, or clients or users grasping the intent of the design. According to Fiske, all kinds of communication require a medium, and all mediums have its own set of perceived and real affordances.

Visual communication can transmit different information compared to spoken words or written text (Jamieson, 2007), but there are differences in how different types of visual information is generated and received. In this view, there is on one hand the surface-level, in which hidden intentions are not revealed: medium and message are seen to present the
same thing. At a more profound level, visual communication can operate from the concrete (explicit) to the abstract (implicit).

A design medium can generally be described as the materials, techniques and tools used by designers to create their design. For example, a pen is a tool and ink can be the material and the technique can be how to implement those mediums to create a sketch. It is proposed that one of the main challenges in designing is keeping a lot of factors in mind, attempting to “freeze and hold constant some limited aspects of design while other factors can be thought about” (Lawson, 1997 p.242). In this view, early sketches are usually low-fidelity, and designers choose what kind of mediums to use, depending on the situation. According to Schön (1995), the need for medium corresponds to the designers’ ability to see and develop a visual representation through whatever preferred medium.

The effectiveness of a medium can be considered by how well the sender can implement it, and how well the receiver can decode what the sender has intended with the medium (Fiske, 1990). In our understanding, the first phases of design sketching often seems based on the designer’s own sense-making, implemented by his or her preferred medium, which through cyclic and iterative explorations and perhaps other mediums are transformed.

3. Method

The study outlined in this paper consists of a literature review and visual analysis of video material of “how to draw like a...” in different design disciplines. The literature review was implemented to collect and analyse relevant existing knowledge. The current review followed Rodgers & Milton’s (2013) five-step example through initially formulating research questions to answer and from these identify areas and key words to search for and identifying sources based on academic databases such as Scopus, Web of Science, and Google Scholar using search keywords such as “sketching, visual, dialectics, communication, design, techniques, mannerism, early design” in different combinations. In order to evaluate the literature, references with most citations were chosen. Relevant aspects in relation to the research questions were then identified and summarized in this paper.

In addition, visual analysis of videos of “how to sketch...” in different design disciplines was performed. Five videos or blogs were selected from each field. The videos were identified through searching primarily Youtube (www.youtube.com) and the web using search terms in the form of “draw like a product designer”, “sketching for graphic design” and similar forms. Selection were based on view count and popularity. Some search results were omitted if they did not display the act of sketching, or if they had the same author. For one of the fields, graphic design, there was too little video content available so there the search had to extend to text based blogs. The sources are listed in Table 1. The rationale behind the choice of material for the study was that we wanted to see what was communicated from professionals to aspiring designers, before they even applied to higher education, thus contributing to the reinforcement of the culture of the practice.
Table 1. List of analysed videos and blogs sorted by field.

<table>
<thead>
<tr>
<th>Field</th>
<th>URL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td><a href="https://youtu.be/oKF9LsC0RaY">https://youtu.be/oKF9LsC0RaY</a></td>
<td>The Role of Sketching in Graphic Design</td>
</tr>
<tr>
<td>G3</td>
<td><a href="https://bonfx.com/50-sketches-from-a-graphic-designer/">https://bonfx.com/50-sketches-from-a-graphic-designer/</a></td>
<td>50 sketches from a graphic designer</td>
</tr>
<tr>
<td>G4</td>
<td><a href="https://millo.co/how-sketching-will-take-your-design-process-to-the-next-level">https://millo.co/how-sketching-will-take-your-design-process-to-the-next-level</a></td>
<td>How sketching will take your design process to the next level</td>
</tr>
<tr>
<td>G5</td>
<td><a href="https://www.creativelive.com/blog/drawing-for-graphic-design-exercises/">https://www.creativelive.com/blog/drawing-for-graphic-design-exercises/</a></td>
<td>Drawing for graphic design exercises</td>
</tr>
<tr>
<td>P1</td>
<td><a href="https://youtu.be/L9D9JWS29h4">https://youtu.be/L9D9JWS29h4</a></td>
<td>How To Sketch Like A Industrial Designer (part 1 &amp; 2)</td>
</tr>
<tr>
<td>P2</td>
<td><a href="https://youtu.be/IOsDxLDI-KE">https://youtu.be/IOsDxLDI-KE</a></td>
<td>How to sketch ANY product using this ONE trick NO JOKE</td>
</tr>
<tr>
<td>P3</td>
<td><a href="https://youtu.be/7hkXwC10vFg">https://youtu.be/7hkXwC10vFg</a></td>
<td>How to sketch product design-Product design process</td>
</tr>
<tr>
<td>P4</td>
<td><a href="https://youtu.be/r-UqGtsjKiU">https://youtu.be/r-UqGtsjKiU</a></td>
<td>Intro to Product Design (With a Focus on Sketching)</td>
</tr>
<tr>
<td>P5</td>
<td><a href="https://youtu.be/m5E3O56f9Ew">https://youtu.be/m5E3O56f9Ew</a></td>
<td>Form, Divide, Beautify: Design Sketching in 3 Easy Steps // Coreskills Episode 2</td>
</tr>
<tr>
<td>A2</td>
<td><a href="https://youtu.be/eNNAnSCrrBI">https://youtu.be/eNNAnSCrrBI</a></td>
<td>Sketch like an Architect (Techniques + Tips from a Real Project)</td>
</tr>
<tr>
<td>A4</td>
<td><a href="https://youtu.be/QgSrVd_c7Vs">https://youtu.be/QgSrVd_c7Vs</a></td>
<td>Top 6 Architecture Sketching Techniques</td>
</tr>
<tr>
<td>A5</td>
<td><a href="https://youtu.be/a7_Fzz-R3dU">https://youtu.be/a7_Fzz-R3dU</a></td>
<td>How To Sketch Like An Architect</td>
</tr>
</tbody>
</table>

The videos were watched and analysed by adopting a phenomenographic approach. This a way to find variations in a context and identify the underlying factors that enables them (Adams et al, 2011). The analysis is performed iteratively, going through the material, sorting it into distinct categories of how to understand and experience the context. The relationships of the different emerging patterns are explored and described.

Phenomenographic analysis is in general based on material from semi-structured interview protocols, but the method was here applied to the material at hand. To aid the visual
analysis, one of the authors undertook what might be defined as experience prototyping (Buchenau & Fulton Suri, 2001), in the sense of imitating the different sketching practices that was introduced in the videos. The rationale for this was searching an embodied understanding of the sketching practices’ enactment of mediums, space, lines and other representations. This is further described in up-coming sections.

4. Study of online material

The upcoming sections outline the results of the analysis and the experience of prototyping the video material of “how to draw like a...” in the design disciplines of product design, architecture and graphic design. A first comparison between the instructional “how to draw like a...” videos and blogs showed that there were differences in how they explained the sketching activity. The basic assumptions about why to sketch were similar independent of the field, i.e. that it was a fast tool for ideation and communication of early ideas. Though, when it came to the more communicative sketches, differences in rationales emerged.

4.1 Categories

In the analysis, three main categories were identified. The first category is the mediums, the tools and materials displayed in the videos. A demarcation was made for the tools used to put mark on paper, which means that drawing aids were excluded. The second one is the handling of space, involving perspectives, forms and context. The third category is line, outlining how a line is drawn through a technical and aesthetic perspective.

4.2 Mediums: tools and materials

In the graphic design videos and blogs, the tool was a pen. There was no motivation for the use of this tool, and it seemed as it could be any pen or pencil. The materials were plain paper, mostly graphed. The product design videos had a more confined tool box compared to the architecture videos. The tools used for product design were pens and markers. Also white gel and coloured pencils, they were never used directly in the videos but shown in examples. The material used were mostly copy papers and sketch books.

In the architecture drawing videos, the tools were more diverse and consisted of pens, pencils, sharpies, fine-liners, markers, brush tips. The most dominant tools were black and some coloured pens and fine-liners, and grey-scaled or coloured markers. The materials were copy paper or sketch books with dotted or Kraft paper, and tracing paper. In summary, the different mediums can be visualised as the tool boxes for the different design disciplines, containing of different tools and materials, illustrated in table 2.
Table 2. Illustrating mediums in the different design disciplines based on the videos.

<table>
<thead>
<tr>
<th>TOOLS</th>
<th>MATERIALS</th>
<th>TOOL BOXES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic design</td>
<td>Black ball-point pen</td>
<td>Paper, plan, graphed or dotted</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Small, but can contain whatever mediums</td>
</tr>
<tr>
<td>Product design</td>
<td>Pens, markers, white gel pens, colour pencils</td>
<td>Copy papers, sketch books</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium, restricted to certain mediums</td>
</tr>
<tr>
<td>Architecture</td>
<td>Pens, pencils, colour pencils, sharpyes, fine-</td>
<td>Copy paper, sketch books graphed or dotted, Kraft paper, tracing paper</td>
</tr>
<tr>
<td></td>
<td>liners, markers, brush tips</td>
<td>Larger, less restricted to certain mediums</td>
</tr>
</tbody>
</table>

4.3 Space: perspectives, forms and context

The analysis of the product design and architecture videos showed that both used theories of perspectives. Still, there were a difference in how the description of proportion was valued, and the reliance on rules. Whilst the architect videos in many cases used isometric-, planar- and 2-point perspectives to ensure proportions, the product design videos more often assumed perspective using a primitive that appeared to have some sort of perspective and intended proportions as guidelines for the rest of the sketch. It seemed that as long as the lines appeared to converge somewhere, without any construction lines to see that it actually did so, it seemed fine in these videos. The space aspect was treated somewhat differently in the graphic design videos, what we propose is due to working in a 2D instead of a 3D space. The space in these graphic design videos was understood as the interaction of content on a surface, the balance, contrasts, negative space, the reading order and visual clarity.

Table 3. Illustrating the different uses of space in the design discipline specific videos.

<table>
<thead>
<tr>
<th>PERSPECTIVES</th>
<th>FORMS</th>
<th>context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic design</td>
<td>Not applicable</td>
<td>Mostly squared shapes as placeholders for content</td>
</tr>
<tr>
<td>Product design</td>
<td>Assumed 2- and 3-point perspective through guidelines</td>
<td>Basic primitives like a box or cylinder, or combinations, form a base structure for refining</td>
</tr>
<tr>
<td>Architecture</td>
<td>Isometric-, planar- and 2-point perspective</td>
<td>Basic primitives like a box or square, or combinations, form a base structure for refining</td>
</tr>
</tbody>
</table>
4.4 Line

By experimenting with different types of lines showcased in the video material, distinctions could be made between line characters. The lines used in the videos for product design are in general continuous and fast, as described in video P4, see table 1: “you want to show your confidence, like you know what you are doing.” (23:55). Drawing the line becomes more of a movement than a controlled process of getting the pen from point A to B. In many of the product design videos this is promoted as something important, i.e. to practice the movement of the arm to generate fast lines, arcs, circles and ellipses.

Generally, the architecture videos show a bit different type of lines compared to product design. These lines are also continuous, but employed a bit more meticulously, slower strokes that give them a bit more wavering, but more focus on keeping the symmetry. According to video A2, see table 1, the “waviness” should support in making the lines look straighter (3:10). In video A1 it is stated that “wavy lines generates an imperfect, sketchy feel” (3:00) which is stated as a good thing. Also, video A3, see table 1, promotes “wiggly” lines, since forcing straight lines takes too much energy and focus from the aim of the sketch. The graphic design videos have a much smaller sample, and much less expressed consensus regarding drawing techniques. The quality of the line is not discussed in these videos, and areas are drawn by tracing the pen around it.

To acquire an embodied experience of how to draw like a graphic designer, product designer and architect, one of the authors made a lot of sketches based on how the implementation of lines were communicated and showcased in the videos. A result of this was the understanding of speed. To illustrate the different kind of lines used, they were organized based on speed, see figure 2.

![Figure 1. Visualising different lines, from fast to slow. Illustration: Daniel Öhrling](image)

The embodied experience was that faster lines require a feeling for the movement of the line, while the slower ones require that the eye controls the movement to make sure that the tool got the right input. It was experienced as easier to draw straight lines by lowering the speed. This is of course a matter of practice, but for a moderately skilled sketcher the
fast lines never managed to get the same straightness as the slower and stricter lines. This is simply illustrating the embodied experience and conclusions cannot be made based on this experiment.

However, the findings could be displayed in a matrix using two axes: fast to slow lines, and approximate to precise. The approximation in this case means that a line only describes the character of a shape instead of depicting it in its final form, while precision is a strive to keep the lines truer to the geometry it should describe. How the measurable material from the design disciplines relate to these units of analysis is shown in figure 2. Note that the measure for graphic design is highly uncertain since there was not enough input to build upon. The plot shows that product design lines ended up in the fast/approximate quadrant, graphic design in slow/precise, and architecture also here showed a larger variety, but leaned towards slow/precise.

Figure 2. Illustrates the design disciplines use of lines.

The act of putting lines on the paper showed to be the largest divider between disciplines. The architects slower, careful and lively lines do not only have another aesthetic than the product designer’s fast strokes or the graphic designers searching trace lines, it also appeared to give a different interaction with the lines. The faster strokes required a feeling for the movement of the line, emphasising the fluidity more than precision, and works well with broad, quick strokes. As described in for example video P4 (22:25), see table 1, the line is placed by aiming for the end destination of the line, modifying the movement depending on what curvature that is intended for it. The focus is on the intended line, not the placement of the pen. The slower lines required more eye-hand coordination and control. One had to visually evaluate the lines behaviour and adjust the movement if the line didn’t go where it was supposed to. This might be the reason why the “wiggly” lines where encouraged, since the irregularity of the line conceals corrections that are made during the strokes.
5. Discussion

When someone aspires to become part of a design community of practice, it probably seems natural to conform to the discourses and expressions that the practice conveys. Watching the videos and blogs used in this study was a way to see the phenomenon from the aspiring designer’s horizon, i.e. what they are confronted with when forming themselves into what they want to become.

We started out with proposing that there are specific manners and methods that are characteristic to different disciplines within design, something we call ‘visual dialects’ in design, and asked why these manners exist and how they might be identified. For future work, we are also interested in finding out if these dialects affect ideation- and communication space since the manners and techniques used shapes our language, and what meaning that is formed. Another question is how the conformation affects the community of practice and it’s culture, and if it needs to be challenged.

The mediums used in the analysed material showed that product design had a much more limited arsenal compared to architecture. The impression is that you need a pen, some fine-liners and markers to have the prerequisites for product sketching, while there is a bit more freedom of choice when it comes to tools for architectural sketching. In one of the videos it was argued that “design sketching is specifically designed, to be able to sketch products very efficiently and quickly” (P1 (2:46), see table 1). Such statements make it difficult to argue against having to learn the manners and techniques promoted in the videos, if one wants to become a product designer, and might be contributing to the conformity regarding tools. No such statements were made in the other disciplines. In architecture, mixing up tools, mediums and techniques was promoted, as an example in A2 (5:50, see Table 1).

How perspective, forms and balance were treated differed, but mostly between graphic design and the other two disciplines. The architect- and product design videos all have a strong reliance on perspective rules, product design have a bit more “laid back” attitude but basically, they all seemed to regard it as something fundamental. Graphic design videos do not mention this at all.

The differences between how product design and architecture approach the line might be because of the object of their designs and their process. The object for architects are buildings, buildings are expected to have vertical walls, straight angles and specific dimensions for exteriors and living spaces. In their process, as it seems from the analysed material, they have a tradition of working with tracing, building on earlier drafts and drawings. This combined requires a higher precision in where the lines are placed, to make sense. Product designers work with conceptual artefacts with less specified shape, and often lines and surfaces requires tension and curvature. This seems better suited for the fast aim lines that describes the sense of curvature more than the exact placement of it.

The evaluation of the “how to...” material indicated that there were a common view regarding the usefulness of sketching in all disciplines, but differences in their views of how.
Of the three, graphic design deviated the most in this regard. The study did not give a clear answer to why. One could speculate that this is because of that graphic design works mostly in a two-dimensional space, whilst the other two works in three dimensions. Another factor could be that the graphic design process doesn’t rely as much on communication of rough ideas and concepts as in architecture and product design, and therefore haven’t formed a consensus around what could be described as a “graphic design style sketch”. To answer this requires a different kind of study.

In conclusion, the results show that there is a foundation of techniques and methods shared between different disciplines, but also strong discipline specific biases regarding mediums, techniques and manners that may be articulated as visual dialects. Even though this study only looks upon just a small part of what can constitute visual communication, the concept of visual dialects can be a platform to explicate the character of sketching and visualisation, which can form a base for further studies on rationale and implications of how visual artefacts are generated, channelled and perceived.

References


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Abstract | Foreign Direct Investment (FDI), or controlling investments that cross national borders, is in many respects the backbone of globalization. However, a considerable part of it is composed of “paper” shell companies used for tax avoidance and other purposes. While it is possible to reconstruct chains of FDI positions, it is difficult to raise public awareness of the full scale and shape of the phenomenon, in terms of not only the countries or amounts of money involved, but also the high levels of uncertainty surrounding estimates of these figures. In this paper we introduce the Atlas of Offshore, a visual exploratory tool meant to enable domain experts and broader publics to explore offshore finance, with a focus on clearly showing the complex webs of relationships between countries involved. Starting from a variation of the “Sankey Diagram”, we propose a solution aimed at representing the topology of the network, the estimated size of investments, and the uncertainty surrounding these estimates. A prototype of the tool has been developed, testing the visual model with data describing the network of offshore investments for nine countries, enabling domain experts and others to obtain a new perspective on this issue.

KEYWORDS | BUSINESS AND FINANCE VISUALISATION, FLOW VISUALISATION, AESTHETICS IN VISUALISATION, UNCERTAINTY VISUALISATION, GRAPH/NETWORK DATA
1. Introduction

In this paper we describe the preliminary results obtained in the design of a visualization tool facilitating visual exploration of offshore financial relationships. This was undertaken as an interdisciplinary collaboration between an economic geographer, two information design researchers and two researchers with a background in media studies and science and technology studies. The working prototype, described in this paper, can be found at this link: https://offshoreatlas.publicdatalab.org/explorer.

The starting point is the economic geographer’s work constructing a novel database of the estimated offshore investment relationships between specific countries. The construction of this very large network database raised an issue; namely, how to represent “complexity without spaghetti”, or, in other words, render the structure of relationships intelligible, rather than simply overwhelming. At issue here is not simply the analysis of the database, but also the question of using creative visualization tools to render complex economic phenomena legible to a relatively broad societal audience.

The visualization techniques deployed here represent an attempt to strike a balance between across two key dimensions of tensions. Firstly, as noted above, there is the desire to show both the detailed structure of international economic relationships, and the key “big picture” elements of these relationships. Secondly, and just importantly, however, there is the desire to both show our best-available current understanding of these relationships, and the willingness to avoid creating a false sense of certainty potentially shutting down public conversation (Latour & Weibel, 2005) surrounding what remains, even with the application of novel estimation procedures, a fundamentally opaque and poorly understood element of the world economy. What is particularly crucial to convey here— and what is currently not well-recognized by even many expert—is that the massive scale of the offshore data “black hole” at the heart of the world economy means that we do not really understand even many of the most basic contours of the shape of the latter (Damgaard, et al., 2019). Indeed, as Maurer (2008, p.160) puts it, “Far from a marginal or exotic backwater of the global economy, offshore in many ways is the global economy.”

Not surprisingly, these are not new dilemmas, and we can thus specifically situate the atlas project against broader debates around the knowability, unknowability and governability of transnational economic activity (Slobodian, 2018); the infrastructural configurations of relations between markets, states and citizens (Roberts, 2010); and the need for data practices that fully respond to and reflect uncertainty (Anderson, 2018).

1.1 Foreign Direct Investments

Foreign Direct Investment (FDI) consists of controlling investments by companies and individuals that cross international borders. FDI is often considered to be the backbone of the global economy, as it is created whenever a company makes cross-border investment in a factory or other facility or acquires or merges with a company in another country.
However, FDI also consists largely of “paper” shell companies used for tax avoidance and other purposes (Haberly & Wójcik, 2015). In fact, data from the International Monetary Fund (IMF) show that this offshore component of FDI—which is generated as a by-product of tax avoidance and other offshore games—may actually be larger, in total, than the amount of FDI that is not in some way linked to or distorted by offshore structures. As of 2016, roughly two thirds of all worldwide FDI recorded by the IMF—likely accounting for at least 40% of the underlying capital invested (Damgaard, et al., 2019)—was either in or from “offshore” jurisdictions whose investments are believed to consist largely or mostly of foreign-controlled shell company structures.

1.2 Dataset

Growing awareness of these problems among researchers and statistical agencies has led to a concerted effort to shed light on the contents of the offshore black box at the heart of the global FDI network. The OECD has begun to coordinate efforts by major developed economies to compile information on the ultimate, rather than just the immediate origin of FDI entering them (Damgaard & Elkjaer, 2017).

Ongoing Country-by-Country-Reporting (CBCR)\(^1\) and beneficial ownership reporting reforms at the national and international level hold the promise of further improvements in official data (Wójcik, 2015). At the micro (company) level, databases such as Orbis\(^2\) have opened the door to efforts to reconstruct our picture of the global shell company network from the “ground up” (Garcia-Bernardo, et al., 2017) while statistical methodologies have been applied to macro-level data to infer the structure of parts of the network that cannot be directly observed (Casella, 2019; Damgaard & Elkjaer, 2017; Haberly & Wójcik, 2015).

The dataset is the result of a methodology (Haberly, forthcoming) based on multiple micro (Orbis) and macro-level (OECD, IMF, and US BEA) datasets. It allows us to construct a multidimensional matrix of offshore FDI positions, cross-disaggregated across ultimate home country and two different layers of conduit jurisdictions,\(^3\) in nine major economies. Each country can, therefore, have four possible roles in the network, sometimes simultaneously:

1. **Source:** “true” ultimate investing country;
2. **Secondary conduit:** “ostensible” ultimate investing country (i.e. reflecting offshore incorporations/inversions at the parent company level);
3. **Primary conduit:** immediate (conduit) investing country;
4. **Target:** destination country.

\(^1\) to foster tax transparency OECD required all multinational enterprises to provide the global allocation of their income, taxes and other indicators of the location of economic activity.

\(^2\) Orbis is Bureau van Dijk’s flagship company database.

\(^3\) FDI Positions are the cumulative value of investments at a given point in time.
The dataset simultaneously highlights where international investors-multinational firms claim to be based and where they are “really” based, as well as the jurisdictional pathways that they use to invest in particular host economies. The dataset is structured as independent networks based on nine destination countries that encompass more than half of the world economy: United States, Russia, United Kingdom, China, Italy, Brazil, India, France and Germany.

The constructed dataset contains a high level of uncertainty. As argued (Damgaard, et al., 2019; Damgaard & Elkjaer, 2017; Linsi & Mügge, 2019), official economic statistics and FDI statistics in particular, are far less reliable, and have much larger gaps than is often assumed. In this case, the lack of official data on offshore investment chains has made it necessary to estimate the value of these chains through a Monte Carlo simulation approach, which generates a very large number of possible scenarios of what the structure of these chains could be based on a mixture of known (fixed) and estimated (variable) data points fed into the simulation. The dataset thus does not consist of individual estimates of the value of investment positions, but rather a “cloud” of investment probability distributions, which may be wide or narrow for any given investment chain.

2. Related work

Although there is a long tradition of exploring public finances with information graphics (Gray, et al., 2016), it appears that public spending has featured more prominently in such projects than taxation or revenue (Gray, 2015). Offshore finance has been covered by journalistic media reporting specific cases of scandals that represent a portion of the phenomenon. Recurring visualization strategies include scrollytelling with data, for example “Swedes in Paradise Papers” (Hjalmarsson, et al., 2017), and explorable network graphs, mostly ego-networks (Freeman, 1982) and detecting key players (Bounegru, et al., 2017), for example in “The Power players” (International Consortium of Investigative Journalists, 2016). The project “Swedes in Paradise Papers” describes Swedish people involved, representing them by dots that are clustered according to demographic characteristics. In “The Power players” case, the stories focus on evidencing the relationship between individuals and entities, filtering leaders and politicians according to countries and world regions. A non-journalistic case is the project “How complex are corporate structures?” developed by the NGO OpenCorporates (OpenCorporates, 2013) that relies on geographical representation to show the connections and location of offshore companies related to the seven main US banks. The result is a deformed map that visualizes only the offshore companies through points, showing the financial geopolitics of world offshore "hubs". Much of the coverage associated with such leaked databases has focused on the role of specific actors (e.g. politicians, celebrities), countries, or the story of the leaks themselves, rather than what they can tell us about the structure and transnational dynamics of offshore finance. Meanwhile, in an academic setting, the CORPNET research group has produced more comprehensive (albeit static) visualizations of the structure of the global financial
networks (Garcia-Bernardo, et al., 2017) using conventional network visualization tools such as Gephi’s ForceAtlas2.

3. Design approach

The dataset consists of investment relationships that pass between countries via layers of other jurisdictions. Each relationship in the dataset can be seen as an investment chain comprising all successive steps from the country where an investment originates to the destination one. Each chain can represent a direct investment from the source to the destination country, or indirect investments involving one or two “conduit” countries between the origin and the destination.

By aggregating these chains, the underlying topological structure is composed of countries (which are the nodes) linked by investments.

Two countries can therefore be linked by several kinds of investments. In other words, countries may assume different roles according to the links they have with other countries in the sequence of how the investment goes through including ultimate origin, primary (parent company-level) conduit (e.g. for offshore corporate “inversions”), secondary (subsidiary-level) conduit and destination. The main problem posed by this particular data structure is what visual model should be used to represent such a multilayered, as opposed to simply bilateral, network structure.

3.2 Design requirements

The data structure brings three main problems in the visual model design. Each country can have simultaneously multiple roles: for example, being source for some investments, and conduit for others, or either target (Figure 1). Furthermore, investments chains can be aggregated or disaggregated between each pair of nodes. Finally, these structures can easily involve loops among countries, which in practice tend to dominate the figures due to the pervasiveness of offshore “round-tripping” (Haberly & Wójcik, 2015).
The described prototype has been created with the goal of representing in an efficient way to allow the database creators to disseminate results.

After discussing with the database creators, we identified the following design requirements:

- **R1.** Provide an overview of all the investment chains related to a specific country;
- **R2.** Show all the kind of chain couples (source to the primary conduit, primary to the secondary conduit, secondary conduit to the target, primary conduit to the target, and source to the target);
- **R3.** Highlights chains passing through conduits, rather than going directly from source to destination;
- **R4.** Enable the aggregation of chains passing through a group of countries;
- **R5.** Enable filtering of chains passing through a group of countries;
- **R6.** Show the value of uncertainty;
- **R7.** Show the amount of investments related to each flow;
- **R8.** Show the total amount of investments positions for each country;
- **R9.** Show the proportion of investments per country role (source, primary conduit, secondary conduit, destination);
- **R10.** Show flows directions.

### 3.2 Visual model design

Being a graph structure, the first tests entailed adopting a network diagram. This visual model provides an overview of all the investments targeting a specific country (R1) and would easily allow aggregation and filtering operations (R4, R5). This was indeed the first solution adopted by the database creators to represent such data.
However, the dataset is not simply composed of bilateral links between nodes, but rather by chains of links through layers of nodes. This means that the same pair of nodes can be linked by several flows following different directions. Furthermore, a conventional network diagram is not efficient in representing the different role that a country could have. It creates visual ambiguity about the nodes’ sizes (i.e. the role in investment that this refers to) and make it difficult to automate node positioning due to the complexity of link chains.

In the current case, nodes are more likely conduits through which the investment chains pass. The same investment chain could pass twice through the same node in some situations, and the same node could play different roles in different chains.

Among network representations, we focused on the Sankey diagram for its ability to represent transfers or flows within a system (Schmidt, 2008). The model is usually composed of rectangles to represent the different nodes of the system and ribbons to represent the flows. The model keeps most of the advantages of network diagram and is more efficient in representing relative proportional breakdowns among flows and nodes (R7, R8). By using vertical bars for nodes, it allows to clearly show the total size of investment positions in a country as the height of the bar is proportional to the thickness of lines entering it.

Representing the nodes as bars helps visually differentiate between the roles played by each node (R9), through use of groups of stacked bars. Conceptually, each node in the diagram is in fact a group of nodes (one for each possible role in chains of investment) and therefore is possible to show how each pair of nodes is connected. For example, the node representing Netherlands in the network of investment entering the UK (Figure 2) is actually composed of three sub-nodes: Netherlands as a source, as primary (parent company-level) conduit, and as secondary (subsidiary-level) conduit, within any given chain of investment in the UK. Each of the sub-nodes can have both inward and outward investment links to any other sub-node.
Figure 2. Example of a node with multiple roles: in the UK network, the Netherlands act as source (black bar), primary conduit (dark gray bar), secondary conduit (pale gray bar).

Through initial graphical tests, the arrangement of nodes in space (both the horizontal and vertical positioning) emerged as crucial in communicating the main role of each country. The automated layouting, as the one present in the D3.js code library adopted in the prototype (D3/d3-sankey, 2015/2020), was not efficient due to the large number of links among nodes: in the test, users were confused about the meaning of nodes’ positions. To define a common positioning model, and to consistently highlight the role of each country in the network (R9), it was adopted a disposition based on the total amount of investment per type.

The value of all the investments passing through a node are aggregated by node role, and the most important role for each country (in terms of amount of investment) is used to define the position of nodes from left (predominantly sources) to the right (predominantly targets). Vertical node positioning doesn’t encode any information and is simply optimized to minimize figure overlaps.

Finally, we designed the visual attributes of links. Two main pieces of information are shown here: the direction of investments (R3) and their typology (i.e. if direct from source to target, or conduit-mediated). Regarding investment direction, several solutions were tested, and gradient-based animations were used to graphically show which way money is moving. The types of investments are differentiated by color. Direct investments (i.e. not mediated through a conduit) were represented with green-blue gradient animations. Meanwhile,
investments indirectly mediated through conduits (including offshore investment positions) were represented with orange-fuchsia gradient animations.

3.3 Portraying uncertainty

The next task was to portray the uncertainty surrounding the value of investments (R6), which is estimated here in the absence of officially published data. For each investment, we have a “cloud” of investment size probabilities (in billions of dollars), that can be summarized in terms of statistical confidence bands. While there are a number of studies on the visualization of uncertainty (Bonneau, et al., 2014) few of them are focused on network diagrams, and in particular on uncertainty related to edges. Schwank tested several methods to portray uncertainty surrounding edge existence (Schwank, et al., 2016). The key result is that blur is a good solution to convey uncertainty. Furthermore, blur proved to be efficient in quickly enabling users to identify the most certain elements (Kosara, et al., 2002) even if not very efficient in communicating fine gradations in uncertainty level.

In the project, uncertainty is not related to the existence of a link, but rather to its weight. As out estimates take the form of statistical confidence bands, we adopted a mixed approach: the lower-bound (more certain) is drawn as an inner sharp line for each investment, while the upper-bound (less certain) estimate is drawn as a blurred outer line. The larger the blur, the larger the uncertainty (Figure 3 and Figure 4).

![Figure 3. Example of how uncertainty level is encoded for indirect conduit (pink-organge) and direct (blue-green) investments, via blur.](image)
3.3. Interaction design

The visual model proved to be useful in expert user tests examining a subset of data, but still too complex when attempting to show the whole database; a problem amplified by the fact that each pair of countries can be connected by several links depending on role. Furthermore, investment values fall along an enormous range, rendering the smallest ones almost invisible in the complete network. To solve these two issues, we adopted two solutions: filtering (R5) and aggregation/disaggregation (R4). The first reduces the portion of dataset visualized; the second changes its representation according to aggregation level. Both can be applied in combination.

The user can filter the investment chains displayed by selecting one (or more) countries. For example, selecting “Netherlands” will show only investment chains passing through this particular country in a role as source, conduit or target.

To reduce the visual complexity, the user can aggregate all investment chains (via a node labelled “aggregated” for each role) not involving the selected number of most important nodes in the network. At the maximum level of aggregation, only four nodes are visible: one for the target country and one for each “aggregated” jurisdiction role in the network. With a slider it is possible to progressively increase the number of individual countries that are shown in the diagram and related investments.

The interface was then enriched adding the ability to select individual nodes and links (countries and investments). Clicking on a country opens a panel showing that country’s location on the globe, as well as other key information regarding its investment pattern. Clicking on an investment it opens a panel that disaggregates all of the individual investment chains comprising it.
4. Case study / annotated lectures on the diagram

Figure 5. Network of investments targeting Italy at the maximum level of aggregation.

As an example, we can consider the network of investment targeting Italy as a destination country. At the maximum level of aggregation (Figure 5) it is possible to see that there is a single broad green-blue inflow of investment that enters Italy directly without passing through a conduit. There is also an orange-pink link entering Italy via an aggregate conduit jurisdiction — with half composed by investment ultimately originating from other countries, and half of “round-tripping” from Italy itself. From the blurriness it is also possible to see that (blue-green) direct investment that does not pass through conduits is characterized by much lower levels of estimation uncertainty than investment that enters via conduits.
By disaggregating the five most important countries (Figure 6) it is possible to see the different roles played by key source and conduit countries in the network. On the right is the target country (Italy). On the left are countries that are primary ultimate sources of investment: from France (FR) there are mainly direct (“onshore”) investments, while United States (US) investment mostly enters Italy indirectly via conduit structures in the Netherlands (NL) and Luxembourg (LU). The United Kingdom (UK) plays a more complex role: it is mainly source of direct (“onshore”) investment into Italy, but also both invests in Italy indirectly via conduit structures, and acts as a conduit jurisdiction itself for other countries’ investments in Italy. In the middle of the diagram are the principal “conduit” countries: the Netherlands and Luxembourg. These are leading tax haven jurisdictions that both channel foreign investment into Italy, and are widely used by Italian firms and families as nodes in “round-trip” structures (i.e. where their domestic holdings in Italy are owned via offshore structures). While from the Netherlands there is also a small share of (blue-green) investment from “legitimately” Dutch companies, Luxembourg acts almost entirely as an offshore conduit, particularly for Italian round-tripping. 

**Figure 6. Network of investments targeting Italy, disaggregating the 5 most relevant countries.**
Finally, by completely disaggregating the network (Figure 7) is possible to see the role of all countries providing or intermediating at least $1 billion of investment in/to Italy.

5. Conclusion / Preliminary test

In this paper we have examined the design process and decisions involved in creating the data visualization tool for an “atlas of offshore finance”. We presented two design challenges surrounding the visualization of a complex multidimensional network dataset with multiple tiers of links; and the visualization of uncertainty in data based on probability estimates. After defining design requirements, a visual model and interactive strategies have been designed. The proposed solution is an interactive application based on a variant of the Sankey diagram. The application provides an overview of investments chains for a given target country; represent all the possible connections between it and layers of source and conduit countries; deals with problems of scalar differences and data overload by using filters; allowing for different flow configurations to be selectively aggregated or disaggregated; and conveying data uncertainty via the visual variable of blur.

In conclusion we offer some final reflections on what we have done and how this might point towards further work. It is important to mention that this paper focuses on the first phase of this project, namely the production of an application primarily targeted at domain
experts and initial dissemination of the results. It is also the first attempt to define a consistent visual language for the communication of such data.

While we have consulted researchers, civil society groups and other issue experts during the design process, the next phase of the project will be to enter into a public “beta testing” moment to examine broader responses to the project and to understand how this might inform further design activities.

As other researchers suggest, transparency initiatives do not only cater to pre-existing publics, they can also play a role in gathering and assembling publics (Barry, 2013; Di Salvo, 2009; Ruppert, 2015). We might thus further explore the capacities of these visualizations to gather publics and to organize material participation (Marres, 2012) in specific ways around the issue of offshore - including, e.g., relations between citizens, civil society groups, journalists, public institutions, researchers and financial industries. In future work we are particularly interested in how data visualizations may play a role beyond communicating information, including, for example, their capacities to facilitate affective engagements (Kennedy & Hill, 2018), witnessing (Gray, 2019), journalistic reporting and advocacy, the ability to create alternative narratives challenging dominant power structures (Briones Rojas, 2019).

What is particularly interesting about the case of offshore is precisely that public intelligibility is part of the issue: the numbers and estimates have been hotly contested, civil society responses have been questioned by industry, and the esoteric nature of the subject matter makes key concepts resistant to easy communication. The challenge of facilitating broader public engagement around this issue is therefore how to design visualizations which avoid misplaced precision (implying an unfounded level of certainty), whilst at the same time avoiding a kind of “data sublime” (Davies, 2015; Gray, et al., 2020) of visualizations which inadvertently reinforce the notion that offshore finance is unfathomable and publically unintelligible. Thus, we seek to open up public debate and engagement, rather than closing it down through the affirmation of either certainty or unknowability.

Finally, the collaborative design process between researchers with different backgrounds allowed the discussion, reflection and representation of the FDI phenomenon to be conducted from multiple angles and levels. The nature of the phenomenon is not only financial, opening up issues that involve the politics of data in the construction of societies.

References


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What does this symbol mean?
Icons as a Language for Emergency

Rodrigo Ramírez

Abstract | In the intersection of disciplines such as User Experience (UX) and Disaster Risk Management (DRM), this paper presents definitions from a change of paradigm: From dealing with disaster towards the management of risk, establishing the conceptual notion of Before - During - After an event. In the communication of risk, different tools are combined to deliver information about subjects, events or actions. Ideally, a well-designed message allows users to visualize, understand and facilitate decisions. However, in an emergency the experience might be radically altered. Information Design (ID) has a role to optimize messages in such disruptive contexts. In order to cope with access or language barriers, instrument devices such as icons are widely applied. Following ID principles, messages and visual tools devices need to be verified in their effectiveness. Design + Research is presented: In one hand, open-source icons representing emergencies, and in the other their international testing. Establishing performance indicators, the results reveal the importance of simple visual information tools to optimize communication. Conclusions call for an open collaboration process, focusing on a multi-disciplinary integration. Finally, observations are provided as an ongoing process.

KEYWORDS | VISUAL, INFORMATION, EMERGENCY, GLOBAL, TESTING
1. Introduction

Emergency can be considered as a complex scenario with massive demands of information. Media have revealed the impacts of natural hazards and complex transitions such as climate change. These scenarios often coincide with large disruptions such as displacements or epidemics, exacerbating their impacts. However, emergencies can also be seen as an opportunity to explore inter-cultural communication. Disruptive events have triggered cultural transformations such as information technologies and platforms or the design of public policies.

This is an important scenario to transform by design: Such a process can be constituted by individual or collective transitions that respond to the need to reduce socio-natural risks related to climate change, and in some cases, to face complex multi-hazard scenarios. In all cases, designing and delivering the right information is fundamental.

In a critical human experience such as emergency, having clear and opportune information is a key for reducing uncertainty. In order to deliver information that is visible, understandable, and simple to transfer into actions, graphic elements appear as ubiquitous tools, an immediate solution to deliver information. These tools are able to transform data into an information experience, even in critical contexts. Here, aesthetics is necessary because visual language draws on elements that are familiar, visually attractive or harmonious to users. This is also an opportunity to observe how communities construct their own interpretations.

2. Emergency as a scenario for design

International organizations such as the United Nations International Strategy for Disaster Reduction (UNISDR, 2015, 2017) define that in a disruptive human experience such as emergency, managing pertinent and opportune information is a key resource for response. Based on a model by TorqAid (2016), Figure 1 shows a conceptual diagram to show stages on the cycle of Risk Management (usually known as Disaster Risk Management, DRM).
Today, disciplines such as Disaster Risk Management (DRM) or Disaster Risk Reduction (DRR) are oriented to join work efforts covering different moments of cycle, promoting a multidimensional approach (Twigg, 2015, TorqAid, 2016). Due to human nature and its global reach, risk and emergency management emerge as one of the 'largest challenges for development' (WEF, 2017).

Concepts from the UNISDR 2015 document ‘Sendai Framework for Disaster Risk Reduction 2015 – 2030’ – commonly known as ‘The Sendai Framework’ – aims to complete risk (hazards) and emergency (disaster) as a context, consider the “organization and management of resources and responsibilities for addressing […] in particular preparedness, response and initial recovery steps”. Additionally, the Sendai Framework states definitions, delivering relevant terminology to precise further discussion: i.e., Risk, Hazard, Emergency, Disaster.

Considering one from information, is fundamental to work from user needs facilitating for example to identify, learn and transfer messages into actions for a safer experience. From a human–centered focus there is an opportunity to think and apply design products and strategies to transform this scenario. As an example, the book entitled “Design for Emergency Management” (DNEM, 2019) is a comprehensive guide, a handbook on how to conduct emergency by design. Therefore, there is a transition from reducing the impact of disasters to the management of risk. Here, design is a key connector.
The International Standards Organization, ISO (2009) defines User Experience as “a person’s perceptions and responses that result from the use or anticipated use of a product, system or service”. Thus, terms are extended as “user studies” or “usability”, towards disciplinary such as “prevention” or “preparedness”. This is an opportunity to increase awareness on how design can be related: Experiencing crisis is an opportunity to reshape the experience, developing simple communication tools.

A fundamental factor in an everyday experience is information, and its usual manifestation is known as Information Design (ID). Being a response to people’s need to “understand and use” large amounts of information, such discipline has been defined as the “art and science of preparing information to be used by human beings with efficiency and effectiveness” (Horn, 1999). Based on Frascara (2015) definition, ID usually draws on graphic resources such as typography, diagrams or infographics, intending to be an instrument to interact and perform with contents, constituting graphic tools that can be systematically distributed along a user experience. Figure 2 shows a sequence presented by Allard, Briones, et al (2014), a three-step virtuous cycle in ID is Seeing > Understanding > Using information.

**Figure 2. See > Understand > Use Information framework. Adapted from Allard, Briones et al, 2014**

It is possible to transform the experience by an opportune delivered and adequately designed information, and as UNISDR (2015) states, an effective information “can avoid the escalation of an event into a disaster.” However, usually communication is less effective during a critical scenario (i.e., for reaction), thus a critical task is to observe how their components should perform.

As is stated in the UNISDR guidelines “Public Communication for Disaster Risk Reduction” by Robinson (2017), tools for effective communication such as those activated by information technologies appears to be very efficient today, and advances in technology have improved scientific risk information dramatically. Thus, some questions aims to recognize if information is visible, understandable and applicable; for example “What are factors that impede transferring information into action?; why action is ignored during an emergency?”

In a world usually plenty of information, a key to integrate UX and DRM might be identifying contents, typologies, moments and originators of information in a common way, making
visible for example: Who (i.e., responsible - originator), What (i.e., actions - options), or How (i.e., procedures).

Mixing multi-disciplinary approaches, new considerations emerge: Figure 2 shows a sequence, considering information design as a continuum to support human experience, starting from identifying hazards or understanding vulnerability, to action and reaction in a disruptive situation, towards a relief, assembly or procedures for recovery, in a continuum articulated by information.

![User Experience Flowchart]

**Figure 3.** Figure 3. UX + DRM + Information, with focus on communication actions.

As figure 3 conceptualizes, a clear language can decisively contribute to articulate information needs in a critical context, making visible and transforming an uncertain experience into an understandable one. Here for example, information might be applied to identify, create awareness, or facilitate preparedness. During an emergency, information is a key to respond or take decisions. It may help to identify and learn from already known hazards, contributing to reducing their effects. After a critical event, information becomes necessary because such disruptive scenarios usually imply limited access to communication, probably one of the most difficult challenges for recovery. Therefore, a big challenge is how to integrate different supports in all emergency stages to conduct an experience driven by information. Considering moments such as Before - During - After an event, it is fundamental to consider a pertinent, clear language to deliver information.
3. A language for emergency

In everyday life, visual Language have multiple approaches, visual tools such as symbols or icons constitute a simple, global ‘lingua franca’ to create an expressive language and performance of information. Commonly called symbols, pictograms or icons, these are normalized images designed to display concrete meanings (Jardí, 2011). In everyday life, icons are a codified language integrated with communication systems displaying consistent information on multiple supports. However, presenting information that leads to action might represent a cognitive challenge for users in critical scenarios such as in an emergency. As Boersema & Adams (2017) state, different standards of symbols have been developed for diverse contexts such as transport, public spaces or safety at work, always aiming to reach “universal” interpretation.

An emergency can be defined as “a disruptive situation that transforms the expected course of an event. Here, both personal and collective relationships become affected, altering what is considered a normal experience”. Due to human nature and its global reach, risk and emergency management emerge as one of “largest challenges for development” (WEF, 2017).

However, due to their technical complexity or dependence of technology, data might constitute a poor information experience. Being a complex scenario with large information needs, emergency emerges as a challenging context for the design of systems. From an Information Design perspective, this paper is oriented to present definitions and practice, crossing both user experience and cycle of risk disciplines. In this intersection, visual elements such as icons constitute a visual tool oriented to support critical scenarios by information. In specific context of emergency, different initiatives are developed considering context (i.e. a crisis) or specific actions (i.e. evacuate).

However, what about the contextual constraints in human experience? This paper is oriented to develop visual research as a method of inquiry and delivering results on performance of icons as visual language for emergency. Specifically, the application and evaluation of icons as units of meaning for global communication, preparedness and the education of risk.

Such critical context suggests that icons need to be verified in their effectiveness. An indicator to verify language performance is testing. As a literature review shows (Brugger, 1999, Frascara, 2001 ISO, 2007), a fundamental index to evaluate icons is Comprehension. This is an opportunity to explore a language and evaluate their interpretations for emergency.

An open source icon initiative to represent risk and emergency situations is presented. This is an emergent case study including the set of icons, an international testing initiative to evaluate symbols, and activities to creatively work on emergency with communities. Beyond
the design process, this case opens challenging questions about the importance of consistent visual language for disruptive scenarios.

4. An opportunity for a “Language for Emergency”

As mentioned, emergency is a complex experience usually with large demands of information. On the other hand, visual tools such as icons emerge as optimal instruments to handle multiple communication challenges (i.e. accessibility, language, technology).

As a *lingua franca* of the information age, icon systems should be able to present and understand precise meanings implemented by punctual visual elements. Articulated as part of a system, these simple graphic components can play a fundamental role delivering information for multiple moments or decisions. Therefore, a consistent visual language practice can decisively contribute to manage emergency, from identification and preparation—Before—, to reaction—During—towards active recovery—After—.

Here, Guemil is considered as a study case. Their design concept is to represent information for different stages of the cycle of risk (before – during – after an emergency). This is an open source initiative to represent risk and emergency, making available a visual tool for information, but also might activate new conversations on how to optimize preparation and contribute to community resilience applying simple, consistent resources to enhance communication, this is called a “Language for Emergency.” Moreover, the case from these icons constitutes an applied design + research project with multiple outcomes such as collaborative design and workshops. Figure 4 shows the current icon set.

![Guemil Icons set (v15, 2020)](image-url)
5. What does mean this icon?

In communication for disaster, as Kremer (2016) remarks, providing “unambiguous iconography can make a difference […]” However, after visual design stage the implementation of public symbols is usually assumed as is. For the International Institute for Information Design (IIID), one core competency is “Initiate the testing of use and usability, evaluate the test results and refine the information accordingly.” (idX, 2007). Thereby, graphic elements such as symbols and typography appear as ubiquitous solutions delivering visible and legible information to articulate action.

In the other hand, considering only a conceptual or styling statement from originators seems not to be enough: Through a combination of perception and reasoning, evidence about communicative performance is fundamental to demonstrate their effectiveness. Oriented to perform certainly in critical situations, previously users need to visualize and learn what specific information is being represented. In other words, if visual systems are oriented to operate in critical contexts such as emergency, an evidence of performance might be provided. Therefore, performance tests were designed to complement the design of icons, complementing their visual design with interpretation indicators. In the process, data from tests was collected and divided by country, age range or education level. Figure 5 shows the initial concept, constituting a simple base to collect, observe or to compare recognition patterns.

![This icon is a house surrounded by water, with the question in Chinese: “这个图标是什么意思？”](image)

**Figure 5. The question from testing forms, in Chinese**

In this case visual tools should provide cognitive evidence about what is understood (loose or precise meaning), and what is potentially generating multiple interpretations (or confusion) in emergency contexts.
6. Insights from global tests

After the visual design phase, since 2016 an international testing process is ongoing, showing different icons and asking users about two indicators: Meaning and Differences. A large dataset is generated, and a selection of results is presented for discussion.

According to international practice, evidence of performance as an index is constructed mainly by asking users about Comprehension (Brugger 1999; Olygay, 2003; Frascara 2011; ISO 2011). Thus, in the “Meaning” test responses were collected from an open interpretation of each icon. Here, the single question was “What does this icon mean?” presenting an image to be interpreted by the tester. Then, such an answer is matched with its denomination, categorizing the response according to a 6-grade scale. Therefore, beyond the visual design problem, analyzing responses collected from evaluations might reveal new relations from users’ interpretations. Figure 6 shows the project’s website, illustrating a performance index for each interpretation.

![Meaning v15](image)

Figure 6. Guemil website, visualizing the meaning tests results, 2020. Source: test.guemil.info

In the second test, “Preferences” were collected from identifying characteristics associated to a concept among different icons, recognizing particular elements. Here, the single question was “Which of these icons does represent...?” Thereby, according to the
categorization of usability testing by Chisnell & Rubin (2008) this test might be considered as an Exploratory evaluation, where users were asked to select from a series of representations, which of those “matched” a defined concept or message.

Visualizations of results give shape to ideas about interpretation of the emergency. After this preliminary process with results being analyzed, such experience was considered to improve icons, presenting an iterated version. Also, this was an opportunity to improve the instrument. Performance validation is a way to deliver required indicators of effectiveness, but also reveals further insights connected to variables such as location, age or language. Figure 7 visualizes response patterns from the meaning tests in 2019-2020.

Practical applications

1. **Education**: As mentioned, a well–designed information should enhance preparedness, may contribute to decision making and support resilience. Topics such as design for resilience, or design for transitions can be stimulated from such initiatives. Exploring risk and emergency as an education topic is also an interesting approach to work collaboratively combining local and global impacts.

2. **Multi-cultural dialog**: A new practical significance managing such “language for Emergency”, through an inter-cultural approach to work collaboratively on disruptive scenarios. Graphic elements with common interpretation can contribute to construct meanings, then transforming a visual language into action, promoting identification of risks, preparedness, adaptation, among other factors. See Frommberger & Waidyanatha (2017).

3. **Creativity**: This is important because there is a need to raise new ways to approach crisis or emergency management. Open–access is a creative contribution to share meanings and facilitating learning by visual tools. Experiences such as by Japanese models of education suggests that resilience can be nurtured by creativity, using simple and engaging creative methods.

4. **Measuring communication**: A participative approach, collecting performance evidence is a way to measure if graphic language is effective conducting comprehensible and usable communication. This is an opportunity to explore creative and analytical approaches, balancing design thinking and doing.
What does this symbol mean? Icons as a Language for Emergency

**Figure 7. Test results: Icons, Response patterns and Meaning performance 2019-2020**
7. Conclusion

Information Design has a relevant role—and a challenge—for visualizing, understanding and applying engaging, manageable messages in critical contexts. In other words, in a disruptive experience dealing with clear and opportune information can constitute a differentiator for the user’s certainty. Guemil makes available a simple design system to visualize information for users along their experience of risk. Fundamentally, such a project constitutes an experimental research platform to explore the role of information design instruments, and to evidence how users interact with such visual language for emergencies.

Critical scenarios are posing new ways to collaborate, experiment and interact with information. In the process, tools and methods by design have been developed. Collaborative initiatives designed for “new normal” contexts and based on visual language, seems to prevail to communicate globally.

Research is a key to evidence performance, tests responses demonstrate challenging insights to share, making necessary to continue analyzing the results in a project will be iterating continuously. Figure 8 shows the responses on Differences Tests from 20 countries during 2018.

![Figure 8. A map showing global responses from testing (2020). Source: Google Maps](image-url)

Finally, considering that results so far are part of an ongoing process, reflections are presented to generate discussion and stimulate further collaboration:
1. Graphic language can be considered as a key resource to activate meaningful communication and promote action. ID contributes to optimize the experience of emergency, articulating information as a continuum. However, as a research + development process this has been an opportunity to compare local–global perceptions and interpretations, Moreover, such international process allows to recognize local interpretation on icons, risks and emergency scenarios, generating relevant performance evidence and questioning their notion of “universal language”.

2. Upcoming scenarios such as climate change, migrations or adaptive education demand urgently to continue global initiatives based on common grounds such as visual language and the design of information. Open initiatives and interaction design can facilitate dialogs adding new dimensions to project–based research work. They require new ways to engage and experience the emergency, creating resilience, this is an open invitation to collaborate.

3. An interdisciplinary approach is fundamental to explore wicked challenges. Therefore, promoting such projects might contribute to their adoption and stimulate global connections, with a bottom-up approach, relying on collaboration. This might help to generate common interpretations on information for emergency, for example for preparedness and reaction.

4. Multi-cultural communication is an opportunity to open dialog. Actions are oriented to generate discussion on the role of graphic tools for emergency, from local initiatives to international communication platforms, emphasizing the role of information design as a practical, global scale activator for the experience of emergency, as figure 9 illustrates.
Figure 9. The workshop: Visual Information for Emergency, is an icon-driven, hands-on experience to dialog and create about the role of information in emergency scenarios. Image from the 2019 Design for Transitions International Conferences at Jiangnan University, Wuxi China.

As an ongoing project, results also challenge prevalent notions such as “Universal” language traditionally prejudged for icons, exploring local interpretations as knowledge. However, results and connections are going to be presented and open to discuss from multiple perspectives. Beyond just designing a “Language for Emergency”, such research shows cultural implications, suggesting the need of strategies for larger-scale transformation processes in the public realm, such as creative, adaptive education or resilience.

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Acknowledgements: To the UC School of Design colleagues Felipe Cortez & José Allard and our team of design students: Josefina Carvalho, Osvaldo Torres, Monserrat Pulgar, Fernando Gajardo, Carla Castillo and Antonia Barberis, for their commitment and valuable feedback. Additionally, to DNEM team Claudine Jaenichen, Klaus Kremer, Tingyi Lin and Saskia van Manen.
Where methods meet form

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Abstract | Based on two study cases of product design students’ projects this paper analyses how both theoretical and practical research can inform design methods’ development leading to the creation of new form language and expansion of design aesthetics beyond the functionalist paradigm. This paper outlines methodological approaches to integrate design research in practice-based projects to develop new form languages. Transmitting the conceptual and discursive implications of the employed design method is, in particular, challenging within undergraduate design education, that is often depoliticised and service-oriented (Decolonising Design, 2018). Defining the choice of methods as always a political one, the authors of this paper focus on the research as a self-reflecting process that draws from the notion of “designing design” – i.e. on the notion of an open, developing methodology always under scrutiny through practice (Schön, 2017).

KEYWORDS | DESIGN EDUCATION, DESIGN THEORY, DESIGN METHODOLOGY, DESIGN CULTURE
1. Introduction

First two decades of the 21st century have witnessed the establishment of design culture as a scholarly discipline (Buchanan Margolin, 1995; Julier, 2006), which laid ground for a contextualised, theory-informed design education, contributing to the development of new design languages and a broader understanding of design culture. In this paper, we define Design Culture on different levels: as a process of carrying out design, as a context-informed practice within its societal, cultural, geographical milieu, as an agency for a transformative design action (Julier, 2006, pp. 70-72). Within this framework, we propose to understand Design Culture, not as one homogenous entity, rather as “a world where many worlds fit” (Escobar 2018; Abdulla, 2018). We believe that to foster this pluriversal instead of the universal understanding of design; we must move beyond the functionalist, service-oriented paradigm of the discipline towards critical, research-informed design practice (Abdulla, 2018). These design practices acknowledge new modes of doing design. In this process, theory and practice are mutually supportive, and designers – following educational theorist Donald Schön – exercise reflexivity “on action” and “in action” during and following their work. (Schön, 2017; Cal Swann, 2002). Going towards these situated practices, we have to foster design education that is student-centered and enables students to discover what is relevant for their future practice. So, we see education as future building, and the methods – developed in this process of future building – are fluid rather than constant, continuously changing and adapting, responding to the context.

In this paper, we discuss two study-cases of projects developed by industrial design undergraduate students as part of their final project and the methods they developed within the design process. Based on these two cases, this paper explores methodological approaches that can contribute to the broader integration of design research in practice-based-projects and as consequence creation of new form languages, new aesthetics, new visual worlds.

2. Context: Undergraduate Design Education at Universities of Applied Sciences in Switzerland

Following the recommendations of the Bologna Declaration, the two-cycle degree structure of design education puts pressure on delivering skills and methodological knowledge to undergraduate students. In Switzerland, Bologna reform ended the period of vocational education at traditional arts and crafts schools, which had sprung up all over Europe in the latter third of the 19th century (Ernst, 2014, p. 358). Seven Universities of Applied Sciences offer courses in design. The commotion surrounding so-called "academisation" of design belied the fact that the reform in design training led to a real wave of development, and to redefining educational practices.
Where methods meet form

The following two cases are an attempt to apply a student-centred pedagogical approach in undergraduate industrial design studies. Similar to research-based-learning methods, students develop an investigative attitude in addition to the development of necessary skills, i.e. formulating their own hypotheses and iteratively testing them in form of prototypes.

During the short three years leading up to a Bachelors' degree, students learn at least once how they have to play an active part in defining their aims and methods of a design process. The BA degree project consists of two equally weighted parts: a practical and a theoretical thesis. Referring to two study cases, we will discuss in this paper how the approaches mentioned above interact beyond, project-related enquiry and lead students to define their design methods for their future practice. It is not the aim of this paper to offer universal educational solutions, as we believe that those have proven to be ineffective, instead to focus on the situatedness uniqueness of the presented cases (Stake, 2015, p.6)

3. Case #01: Non-visual input and creation of a conceptual framework to address aesthetics in design

The first case examines a strikingly simple, but fundamental question (Halmes, 2019): How and to what extent do the sighted and the blind or severely visually impaired differ in their perception of objects’ beauty? Within her project, Alena Halmes explores how people who are visually impaired understand beauty and how their perception of sounds and fluid can guide the creation of a new form language in product design. Her project is twofold; the first part is theoretical research; the second is a practice-based project informed by this qualitative study. She situates the research within a predominantly ocular-centric western world of thought, which values epistemologies based on visual or ocular metaphors. Already the Greek philosophers recognised sight as the most powerful sense; since the 18th-century European philosophers have extensively described the hermeneutical power of vision (Levin, 1997). Despite the critique on the prevalence of vision in epistemology in 20th-century philosophy, design is still heavily influenced by such metaphors. Terms like form language or semantics design are understood mainly visually, reducing aesthetic criteria in an object-related design to solely visual ones. Colours and shapes constitute prevalent aesthetic criteria in objects’ description, at the same time, both design criticism and education neglect haptic and olfactory aspects of artefacts.

Halmes refers to several studies that have shown the specificity of perceiving the world by people who are blind and visually impaired as they excel in recognising shapes. They are also more accurate in detecting textures, and they estimate distances in steps better because they depend on this ability in their daily life. (Halmes, 2019, p. 1) Based on this knowledge, Halmes asks: How can we talk about beauty, itself a challenging endeavour, if we experience the world based on different epistemologies? Conducting her study, Halmes tried to gain a reflective understanding of the experience of being blind or visually impaired. At the same
time, she explored related topics such as silence and noise, or day and night. These observations would further guide her in the design process.

Methodologically, she conceived a field study that implied six participants: three sighted, two partially sighted and one person who was blind, asking them to bring three objects they consider beautiful, as the prop to begin a conversation on beauty. To limit the criteria of choice, she asked the interlocutors to bring with them objects related to kitchen, leisure, or work. In the semi-structured interview, the author asked the participants the following questions:

1. Do you find any part of the object particularly beautiful?
2. Is the function more important than the material and formal properties of the object?
3. Would your perception change if you could not see the object (for the sighted) or if they could see it (for the visually impaired)?

Following the interview, she presented a series of objects to the participants (a folding chair, salad servers and a folder, asking about the aesthetic quality of each of them). At the end of each interview, the participants had to answer spontaneously, how they defined beauty for themselves. From this conversation, she extracted beauty criteria that she discussed in detail with the participants scrutinising the use of the word “beautiful” as well as the language used by the participants. Asked about their understanding of beauty, they mentioned mainly haptic criteria as they spoke of warm and subtle surfaces, of round and soft shapes, of the organic, of nature. It led them to be specifically attentive to auditive criteria – to the sound objects make. Using a spider’s web diagram, the author compared the weighted criteria of sighted and visually impaired participants.

She concluded that despite the highly individual interpretation of functional and visually, auditive, haptic, production- and memory-related criteria by all her participants, there is a predominance of haptic interaction of people who are blind and visually impaired, grounding their notion of beauty. The author could prove further that the blind and the two severely visually impaired participants are fragmenting the experience of objects and therefore perceive them in more detail allowing them to formulate more precise judgements about haptic quality and materialisation of the objects. The constant flow of haptic perception and the importance of sound as the base of aesthetic experience described by the participants who are blind and visually impaired became the starting points of the design process. Halmes focused on glass as a specifically interesting material in this context: It is transparent, its specific haptic quality connects it with liquids, and it sounds beautifully.

The process of qualitative research does not attempt to generate a theory, instead lays ground for product development, in which the question of how we can use non-visual inputs as guidelines for developing a new form language. Exploring objects is a haptic and sonic experience, therefore using these two inputs opens up new possibilities for design. Trying to explore the sonic potential of objects, Alena Halmes started to examine the history and
typing of wine glasses. In parallel, she deformed existing glasses and investigated how the tone changed in the process. This hands-on research was both history-informed (history of different shapes and glass production modes) as well driven by the findings from the interviews. Interviewing the people who are blind, Halmes accessed “hidden knowledge” (Haraway, 1988) and learned how they interact with objects, touching them from the bottom to the top, trying to avoid “fishing around in the air”. Based on this knowledge, she sketched sounds and shapes from bottom to top.

Flipping through her sketchbook, one discovers hundreds of glasses; distorted, oblique, or fluted. The glass that represents the sound of a singer has ribbed edges; another glass resembles a column as a way of imagining the sound of an engine. (Schmid, 2019, p. 54) Drawing was a crucial and liberating part of the process, in which she broke away from a conventional theory of forms based on visual experience. At this point in the process Halmes was trying to mimic the perception of sound by the blind people and interpret it her way. Informing her project with political theory and criticism of traditional participatory design methods that take the agency of the participants was a significant turning point for the project. This shows how important it is to create curricula that encourage critical thinking and create spaces “where students can engage critically with their experiences, surroundings and reality” (Abdulla, 2018, p. 292).

Figure 1. Trying to explore the sonic potential of objects, Alena Halmes started to examine the history and typology of wine glasses. In parallel, she deformed existing glasses and investigated how the tone changed in the process.
Figure 2. Alena Halmes used a pin board to keep sketches and found material available in the design process. This helped her not only to make decisions, but to argue them with mentors and to reflect the process.
Figure 3. From the descriptions, the most distinctive features were distilled. Translated to sketches and cardboard models of the glasses, Halmes was able to check her interpretation with the blind person and define the form of the final cocktail glass collection.

Halmes finally realised that she wanted to leave the translation of sounds into glass to the people who are blind. She got in contact with two women blind from birth with whom she intensively talked about their notion of water noises – the bubbling, swirling, hissing, and dripping of water in a whirlpool, on a boiling plate, or from a tap. How can a blind person imagine the visual analogy? From the descriptions, she distilled the most distinctive features. Translated to cardboard models of the glasses in a first design round, Halmes was able to check her interpretation with the blind person and define the form of the final cocktail glass collection. She could anticipate some of the sounds of the glasses translating the sonic experience of these interviewees. Collecting qualitative data and translating them into detailed drawings was necessary to collaborate with a glassblower, who produced the glasses.
This way a collection of cocktail glasses was created, breaking with the standard form language that praises functionality, instead an entirely new form language emerges from the perceptions of the blind people. Through the glasses, we can partake in a world of experience otherwise inaccessible. However, there is more to this project. In the process, the long-disputed binary of objects having either strictly functional or symbolic qualities is dissolved (Findeli, 1994). Using semi-structured interviews as part of her qualitative research led the design process. Through a constant dialogue which implies that the knowledge is co-created between the researcher and the researched (Nagy Hesse-Biber & Leavy, 2011) a series of glasses was created, that translates haptic and acoustic perceptions into three-dimensional forms. During the design process, the student used reflexivity to overcome her bias as a sighted person, understanding blindness as a chance to integrate the non-visual into the design. The result is a design that moves away from the purely functional and towards the integration of the aesthetics of the non-visual into the design. The student was able to overcome traditional design methodologies and found her method of exploring different possibilities of perception. Trained to listen and look carefully, she developed an approach that is fundamental for any design process. Ultimately, the project shows how research can inform methodology that celebrates diverse forms of perception.
4. Case #02: Historical research as a design tool

The second case highlights how using design history as a starting point for a design process leads to new approaches towards existing typologies and form language. At the same time, it criticises the notion of national design production and canon building. Exploring three historical debates, Elias Kopp updated and used them as a base and guideline for three chair concepts. (Kopp, 2019) This case shows how discursive and historiographical methods can be meaningful within the design process, expanding general knowledge of temporal social, and practical circumstances. The resulting prototypes show the competence to classify, criticise and continue inscribing this knowledge into new forms. In looking back, the student thought of "how to project forward", creating something that would have "otherwise not be considered" (Fry, 2008, p. 39) This approach also fosters design education that is history-informed, rather than dehistoricised as is often the case within many programmes (Fry, et al., 2015) As such and on the level of design education, the project makes a point of what Noel Waite defines as the overall purpose of design history in educating

"critical, creative and reflective design practitioners, as well as to sustain research-informed design practice within an interdisciplinary Design Studies undergraduate programme." (Waite, 2016)

Methodologically, the author proceeds from an analysis of past debates, which he consistently summarises. He is particularly convincing in his independent interpretation of the debates in terms of their topicality for contemporary design work and in deriving his design methodology out of this analysis. Instead of discerning formal qualities of designed objects of Swiss origin and ascribing them a kind of «national characteristics» (which would have led him into a sort of circular reasoning), he examines three distinct debates of the 20th century. They centre on production, morality and emotion, headed as "typification", "good form" and "postmodern critique of functionalism". In his concise and consistent discussion of these past debates, he draws primarily on the still scarce literature on Swiss industrial design (cf. Schilder Bär & Wild, 2001; Brändle, et al., 2015). Each of these summarising chapters is followed by a reflection in which the author questions the discourses about their topicality. As the most significant contribution of the thesis, they support the design process and the decisions the author had to take in conceiving three chairs.
Figure 5. Today’s digital production such as CNC, plotters or laser cutters enables a close interlocking of the design process, industrial production and the market. It relates historically to the struggle of typification in the early 20th century.

The first chapter, entitled "Form follows Production", is dedicated to typification, which historically links to the industrial revolution and which led to the development of the professional industrial design. In comparison to mass production at the beginning of the 20th century, today’s digital production methods such as CNC, plotters or laser cutters enable a close interlocking of the design process, industrial production and the market. Thus, typification no longer has to be aimed at the conception of entire objects for easy industrialisation. Instead, it focuses on core elements which (as in the case of the chair) can be conceived as connections or complex load-bearing components defining the chair as systems design. Such arguing helps the author to liberate himself from an object-related design approach especially prevalent in chair design as the cornerstone and a cliché of design history.
Figure 6. With «Form follows morality» the author discusses a topical debate that mirrors the historical development from design-related ideology of «good form» and the discussion of sustainability in the early seventies to the notion of a new formgiving factor of the system.

The author then updates the debate on "good form" from around 1950 under the title "Form follows morality". With a view to Burckhardt (1980), he concludes that not only an object but an entire, often opaque system must be designed "well", whereby questions of (ecological) sustainability have now joined and even overcome the intricate interaction of functional and aesthetic factors (Bill, 1949).

The third debate under the title "Form follows emotion" refers to emphasizing the symbolic function of design in the 1980s. It formulated a much-needed critique of rationalism even more growing since the late 1960s, that led to the semantic turn (Krippendorf, 2006). In its wake, it also propagated an authorial design approach primarily concerned with formal aesthetics. However, as the author points out, this attitude did not criticise consumer behaviour but, on the contrary, propagated it. Ultimately, this resulted in maintaining the economic system of fast-changing styles and fashions, mediated through the upcoming internet in the mid-nineties. Reacting to this, the author proposes instead to dissolve the product as a container of formal aesthetic meaning and thus to reformulate the industrial production apparatus. Through adapting and refreshing existing DIY concepts, utilizing Fablabs and conceiving small series, he criticizes the traditional market.
In a concluding chapter, the author summarizes his observations. Since he was not concerned with defining and debating formal aesthetics, but with the analysis of values that guide design processes, the answer to the question of whether there are specific local or national characteristics, a "CH – Design – DNA", is correspondingly general. The author mentions the "ideological focus on quality and function" and the fact that most designers in Switzerland historically took a mediating rather than an avant-garde position in design-related debates. However, he assigns a high degree of urgency to the three aspects of production, morality and emotion derived from the historical debates for past and current design work, thus acquiring a guideline for his future practice. Consequently, this enables him to knowingly and critically align himself in a specific design tradition.

A more comprehensive justification for the selection of the three debates classified as necessary would have been helpful – here; the student reaches the limits of historiographical expertise that go beyond the requirements for a Bachelor's thesis in design. Nevertheless, in a close reading of a few seminal historical debates, he not only comes to clarifications that are essential for any design practice. Together with the practical thesis, it is thus evident what an important role the confrontation with the history of one's discipline
can play for design. The student was able to develop a founded personal standpoint as a designer aiming at rewriting history through design. This is also evident in the practical thesis, which not only benefits from the examination of past debates and decisions but also updates it in the form of design-related solutions at prototype level. Thus, he creates a close link between theory and practice that is mutually supportive.

5. Conclusions

Both cases show from a different angle, the value of theory- and research-informed design practice. They postulate for design education that encourages these ways of doing design, where the impulse of making is accompanied by thorough research. Consequently, as teachers, we should encourage students to find their own ways in combining research methods borrowed from social sciences, critical studies and design history to enrich their practice adding a new layer of knowledge.

The first case exemplifies the importance of qualitative research within the design process. Through the outcome, the glasses, we can partake in a world of experience otherwise inaccessible. This study case shows how Halmes, instead of appropriating and mimicking the ways how blind people experience sound, shape, fluids, therefore creating the representation of the representation, and taking over the agency, made space in the project for the voices of the people with whom she collaborated. Therefore, she decided to conduct a series of semi-structured interviews with three people who were blind from birth and asked them a set of questions. This way she instead of creating a general, universal theory, she focused on the particular uniqueness of each one’s perception, so the translation of sounds into three-dimensional forms would be guided by their understanding. She asked the following questions: How do they conceive the images and movements of water sounds? How can they imagine something that, like water, is so elusive and therefore impossible to touch?

But there is more to this project. In the process, the long-disputed binary of objects having either strictly functional or symbolic qualities is dissolved (Findeli, 1994). Using semi-structured interviews as part of her qualitative research led the design process. Through a constant dialogue which implies that the knowledge is co-created between the researcher and the researched (Nagy Hesse-Biber & Leavy, 2011) a series of glasses was created, that translates haptic and acoustic perceptions into three-dimensional forms. During the design process, the student used reflexivity to overcome her bias as a sighted person, understanding blindness as a chance to integrate the non-visual into the design. The result is a design that moves away from the purely functional and towards the integration of the aesthetics of the non-visual into the design. The student was able to overcome traditional design methodologies and found her own method, exploring different possibilities of perception. Trained to listen and look carefully, she developed an approach that is
fundamental for any design process. Finally, this project shows that every perception is individual and of equal value.

The second case shows how to close the often-lamented gap between theory and practice, design history and studio work, relating design historical research to current practice. Design usually looks forward, anticipating what will come, and is less occupied with what has been. However, by neglecting design’s legacy, one reproduces a decontextualised and dehistoricized practice (Fry, et al., 2015). In this respect, design history is an excellent means to engage with and reflect upon emergent practices and discourses, and to trace them back to their origins to get a deeper understanding. Or, as Meikle put it: “[…] a historical approach can indeed illuminate contemporary issues without directly addressing them […]” (Meikle, 1995, p. 74)

At the same time, we have to prevent design history as a field of academic study from getting a ‘strangely instrumental and legitimizing flair’, as Fallan (Fallan, 2010, p. 25) criticised Dilnot’s approach (Dilnot, 1984, pp. 3-20). The best way to avoid the common pitfalls of instrumentalising design history as a resource for designers, reducing it to the status of a quick Google image search is to teach design history in a constructive, non-authoritarian way, inciting students to ask questions and build up their own perspectives on the history and the legacy they are partaking.

Asking students for their opinion in order to challenge authoritarian knowledge as well as routinely conveyed, unquestioned teaching content, as a design educator Danah Abdulla (Abdulla, 2019, p. 9) suggests, is one possible way. However, students-led discursive redesigning of content requires that they have a sound methodological basis, either sociological and in terms of observational, ethnographic skills as in the first case, or historiographical as in the second case. Teaching methods are manifold, but one approach that many would agree upon is to empower students to obtain an active understanding of how the notion of difference in experiencing past and present worlds, or of the ways «history» as always constructed perspective into the past interacts with creative processes in general, and of design in particular.

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