

P / REFERENCES OF DESIGN

MATERIAL AGENCY IN BOOK DESIGN.

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ABSTRACT | As you take notes on this article in your black Moleskine, you are also connecting with it and with other objects. How might we explain this connection? How might we design it? This research is based on an exploratory analysis of the relationships designers establish with books, taken as examples of everyday artefacts. The hypothesis states that designed artefacts have an agency that affects designers in the more personal sphere. Initial research started a bibliographic review, after which a socio-material observation model of levels of agency was proposed. The model was validated by testing material objects in workshops that combined participation-action with observing relationships of agency. Finally, the results were read and expressed qualitatively. We have framed person-object relationships as a socio-material assemblage (Bill et al. 2015) in line with Lambros Malafouris's (2013) theory of material engagement, to reconsider the distributed agency of end objects as a shared characteristic, in the light of new materialism (Harman, 2010). The results from the two workshops conducted so far (with 4 and 13 participants, respectively) suggest that emotional involvement and the relationship between users and objects in the practical sphere is greater when participants are related professionally or academically to the design field. The initial interventions show that the number and types of users in the test need to be increased in order to compare data with non-expert users.

1. Introduction

When a person picks up a book, caresses the cover and inhales the scent of the paper, thousands of neurological reactions are taking place in their brain to produce an immersive sensory experience. How might we explain the connection we have with objects? How might this connection be designed?

In Stuart Walker's opinion, design is going through a critical phase of overproduction in the practical sphere (Walker, Stuart 2012). The maxim "form follows function" can be interpreted as an indicator of the value we assign to the practical side of things. In his critique of contemporary design, the author argues that the production of function-based artefacts acts to the detriment of social and personal function. Lack of meaning in the personal sphere is one of the reasons for rising consumerism. Hence the author considers that if designers were to emphasise the sphere of personal meaning, we would be able to generate more lasting relationships with objects.

Following Walker's point of view we understand that designing artefacts that affect us is relevant in establishing more lasting relationships with things. Designing artefacts that are meaningful in the personal sphere brings us closer to the goals of sustainability, reducing consumption and alignment with the needs of an environment suffering a climate emergency.

If we observe the relationship established between people and objects in the terms of New Materialism we can easily identify the problem as part of the living, changing mesh of these theoretical movement studies. As Bill et al. (based on Dolphijn & van der Tuin, 2012, p. 117) explain, this movement can be understood as part of the perpetual rewriting of modern philosophy. It aims to explain how matter imbricates our everyday processes of giving meaning to things (Bill et al. 2015, p. 12).

The authors explain that, despite the diversity of approaches to new materialism, they all share three common areas (Cudworth & Hobden, 2014). The first is that they are based on an object-oriented ontological model, as defined by Graham Harman, in which objects are things and all socio-material ideas, phenomena and constructs are also considered objects or things (2010). The second is that they see reality as an assemblage that is inseparable from human life and non-human processes. And the third is "the acknowledgement of the subjectivity of humanity in a world where the human isn't necessary" (Cudworth and Hobden, 2014, p. 3 in Bill et. al, 2015 p.12). Consideration of humanity's place in the cosmos also implies rethinking relations between what is human and a series of non-human processes "with a variable degrees of agency" (ibid. p. 400).

From this perspective, the end of the Anthropocene Epoch poses challenges to the study of the material relations and interactions established in the mesh of things. The study of connections established between people and objects needs updating in line with a model of variable agency, in which design is not human-centred but also includes xenodesign parameters (Shmeer, 2019), from the multiplicity of relations with non-human agents (Grove et al., 2019) to rethinking non-human-centred perceptive and interpretative processes.

To approach these issues systematically, three main objectives have been defined: (1) defining an experimental socio-material context to observe the designer's experience; (2) exploring material objects and their level of agency; and (3) displacing the point of view to the object.

2. Methodology

We developed a mixed methodology to achieve the objective of discovering the relationship established between objects and subjects, the former being printed books and the latter the participants in the workshop.

Initial research was based on a bibliographic review, which brought us closer to discovery rather than verification (Mejía, 1999), after which a social-semiotic model for observing levels of agency was proposed. This model is the central proposal in this paper and is inspired by the roles design prototypes acquire as sociotechnical entities, as defined in Amanda Guy, Bill Collier and Stephen Reay (2012). The data-collection instrument was constructed from the review, in the form of a printed qualitative survey (Bisquerra, 2004), which, along with the workshop dynamic, was tested with a small group of experts (four participants) in the first workshop.

The next step was to conduct the workshop, combining participation-action with observation of agency relations. The workshop involved participants who were experts in art and design teaching and were considered part of the same microculture. Galen Cranz introduces this concept in her book “Ethnography for designers” to describe specific cultural and social patterns that develop in local and particular contexts (Cranz, 2016).

The workshop was divided into four parts: 1) explanation of the concept of agency; 2) observation and participants’ choice of material; 3) answering the questionnaire individually; and 4) discussion of each participant’s experience with the chosen object.

During the workshop, the researchers carried out non-structured, exploratory observation (Campos and Lule, 2012), looking for variations in phenomena and behaviours that might be relevant to the purpose of the research.

Finally, a qualitative reading of the results was carried out, guided by the quantitative results from the relation assessment sheets.

3. State of the Art

By extending the definition of design, as proposed by Anna Calvera, we can go beyond the object to include human beings in the design concept. Designers and researchers refer to design as a process of defining an artefact, from its essence to the sensations, experiences, values and imaginary signs it activates in the user (Calvera, 2007).

By adopting an extended definition, we can, by way of reflection, trace how the designer’s point of view has shifted throughout history. There are definitions that place the stress on the object, others that focus on the user and, looking further back, one can identify how the designer’s point of view shifts in an action-reaction process, which for decades has reinforced the materiality of an essentially relational activity such as design.

Positioning design as a relational activity involves taking into consideration its context, as is the case with the designers and researchers Amanda Bill, Guy Collier and Steve Reay (2015). From their point of view, the designer and prototype are part of the same socio-material whole. They are inseparable from the very organisation, the very thing, and, furthermore, they extend this to users and all the animate and inanimate things that make up the socio-technological assemblage of design.

According to these authors, this point of view is part of the new materialism movement that arose at the end of the 20th century (Bill et al. 2015, p. 12), with the aim of creating a new conception of how matter imbricates our everyday processes in giving meaning to things. The production of meaning, extendable to scientific knowledge, is also one of the results of design, as we understand it in this paper.

The understanding between designer and object begins as soon as the designer and matter meet and extends to the materialisation of the product at the end of the process. It becomes a constant exploratory creation and evaluation process in which matter and its manipulation are considered through amusing, inventive and creative interaction, which can lead to innovation and originality in the design (Parisi, Rognoli and Sonneveld, 2017).

As Bedolla (2020) states, sensory processes play a relevant role in the design process and the resulting artefacts, leading to the search for benefits to skills and abilities at the cognitive and intellectual level, impacting significantly on people's emotional dimension. People's intrinsic nature demands constant multisensory stimulation, according to Bedolla, as we obtain all our information on the external world through our senses. According to Lefteri (2007), materials help us reach people's emotional level.

However, in recent times, the sense of sight has predominated over the others. Both designers and users of objects have neglected the possibilities offered by the other senses. Stressing the visual has left other possible perceptions by the wayside; for example, touch, is capable of producing different physiological and emotional-affective effects (Morales, 2015). Bruno Munari (2016) analyses how many designers adopt a distinctly visual approach to their work, with little interest in considering tactile qualities such as weight and temperature. If, as Munari continues, we consider all the senses when designing, people will gradually discover that we have many sensory receptors with which to discover the world in which we live.

One explanation of why designers (and many other humans) continue to love physical objects, their touch, and their smell, is the concept of the agency of objects. The archaeologist of knowledge Lambros Malafouris reconsidered the agency of objects and identified different coexisting levels of agency in what he calls "the theory of material engagement" (2013). According to the author, the agentic capacity of inanimate objects and animate beings is not the same:

"(...) we distinguish between "agency", as in the agentic capacity of non-human animals or inanimate objects, and a distinctly human... "sense of agency" –that is, conscious agency" (Malafouris, 2013, p.214).

The distinction between the two provides a more inclusive and equal interpretation of the part of the socio-material whole consisting of people and their objects, as mentioned above. Lambros Malafouris does not consider agency a property of objects and humans; it is not a characteristic of the parts but of the relations established between them, through their shared material engagement.

In relation to the environment, there are different levels of agency with each artefact, a distributed agency. For example, a metro door button has a great deal of agency, even when it is deactivated.

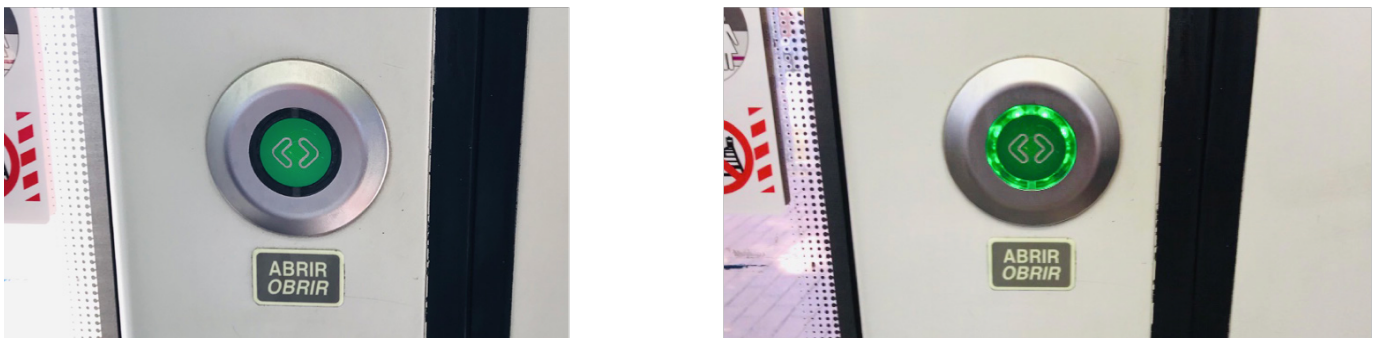


Figure 1. Door buttons on a Barcelona tram. Two levels of agency can be seen, where the one on the left has lesser agency than the one on the right. Photo: Elena Bartomeu.

If we see the design process as one of material engagement, we soon come to realise that designers do not really force their ideas on formats and, ultimately, matter. Rather than imposing their criteria on inert matter (Bill et al. 2015) they listen to the model, converse with it, enter into Malafouris's process of distributed agency, in which artefacts make us change our opinion and the two become a diverse socio-material whole, as explained above.

Material signs do not represent; they enact: They operate on the principle of participation rather than the principle of symbolic equivalency and substitution (Malafouris, 2013, p. 97).

This complements the initial definition of extended design, in which signs activate an environment that is already part of the design assemblage. As Amanda, Guy and Stephen explain, prototypes are not just evolving objects, or not just matter that will later become a final artefact. The processes in which ideas are defined, adjusted and tested through prototypes have more social significance, and more impact on the environment (Bill et al. 2015, 14). And this is even greater if we bear in mind that we have defined ourselves as a socio-material whole in which both human and non-human actors are united in the same organic whole. And even more so if we consider the amalgam of users, clients, partners and the whole network of agents that make up the design production assemblage.

But let us now focus on our interest in explaining the connection we feel with end objects, this connection that leads to personal enjoyment.

Stuart Walker, in *The Object of Nightingales* (2012), presents a vision of design in which the facet of personal meaning is in crisis. The author states that the designed object or artefact has three facets of meaning in which we may interpret it. All three originate in the anthropological principles of the human being, whereby we are individuals, each with our own body (personal facet), we live in groups of different sizes, be they family, friends, or the group of people with whom we share cultural or national characteristics (social facet), and we live in a natural physical world from which we obtain what we need in order to live (practical facet).

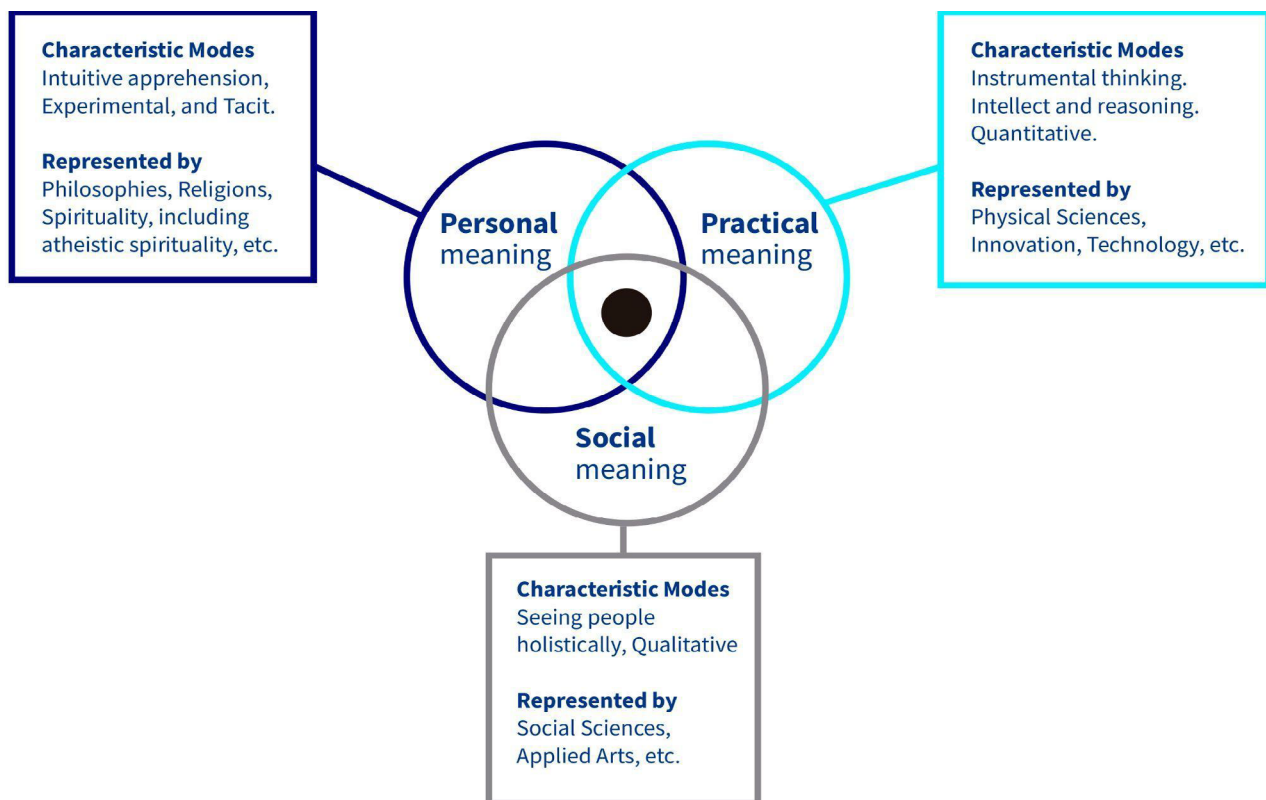


Figure 2: Authors' work, based on Three Facets of Human Meaning and their Interrelationships. Walker, 2012.

As explained in the introduction, the author argues that the production of function-based artefacts is detrimental to social and personal function. For this reason, Walker states that if designers were able to emphasise the sphere of personal meaning, they would be able to generate more lasting relationships with objects, they would place greater value on things and, returning to Bedolla (2020), they would feel more spoken to on the emotional level.

According to Rognoli and Ayala (2018), materials articulate emotions and provide much more than just form to objects; they can contribute significantly to the final perception of the artefact and the emotional

relationships they generate during their life cycle. Emotional relationships are activated when we interact with objects. Thus, a designer must be aware of these relationships to create more meaningful objects. According to Rognoli and Ayala, we do not realise the importance of the emotions produced by the objects around us, both when we interact with them and when we design them.

Thus, we see how sensory processes (Bedolla, 2020) have their own agency, which in turn activates the designers’ sense of agency and affects them in the more personal sphere (Walker, 2012).

Karana, Pedgley and Rognoli (2015) refer to the concept of “materials experience” when they talk about the capacity of objects to activate emotions, suggesting that physical interaction with materials can positively influence the creative process. In this regard, the authors define three components: the aesthetic or sensory experience; the experience of meaning; and the emotional experience. Along the same lines, Maldonado (1993) proposes that designers should experience the “real” side of materials, and not just be familiar with the “virtual” details of materials.

If we integrate the main concepts into a model in which the points of view intersect, we can see how the authors understand design as a process or a result, or sometimes both, and also alternately assign the initiative of connection to the object or the subject.

The different arguments explored here permit us to map the design of socio-material assemblage with the following elements participating in the person-object relationship:

	Effect on the SUBJECT	Action with the OBJECT	Authorship	Focus DESIGN
Engagement	Distributed agency: listening to and dialoguing with the model		Bill, Cullier, Reay (2015)	Process
Material experience	· Sensorial · Emotional · Interpretative	Material The experience is activated by the material	Karana, Pedgley, Rognoli (2015)	Process
Interaction	Physical and emotional	To enact the relationship with the object	Rognoli, Ayala (2018)	Result
Meaning Sphere	Personal / Social / Practical		Walker (2012)	Result

Figure 3. Summary of the arguments on the person-designed object relationship in the design sociomaterial assemblage. Source: the authors.

When we integrate the arguments reviewed here, we see how proposals that place the point of view on the subject vary from those that place it on the object, although both work with similar ideas of interaction. We can see how the authors identify a directionality in the interaction that reflects their preferences regarding agency and the initiation of interaction. Sometimes it is the interface that initiates it, other times it is the user. Some concepts of design as process overlap with those of design as result. Nevertheless, by superimposing the contributions we can identify the common elements in the assemblage that enable us to design with a distributed agency, as shown in figure 4.

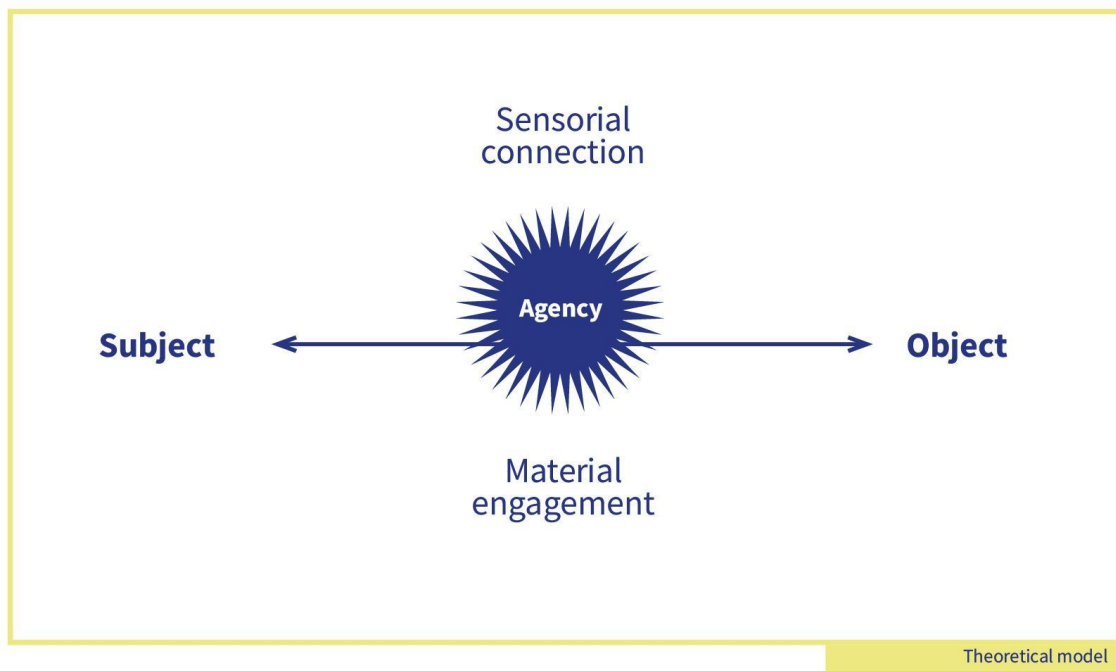


Figure 4. Theoretical model of the material agency of design. Source: the authors.

4. Development

To put into practice the model, we developed a relational practical activity in which we move the point of view to the object and observe the participants. This takes the form of a workshop titled “Is this print talking to me?”.

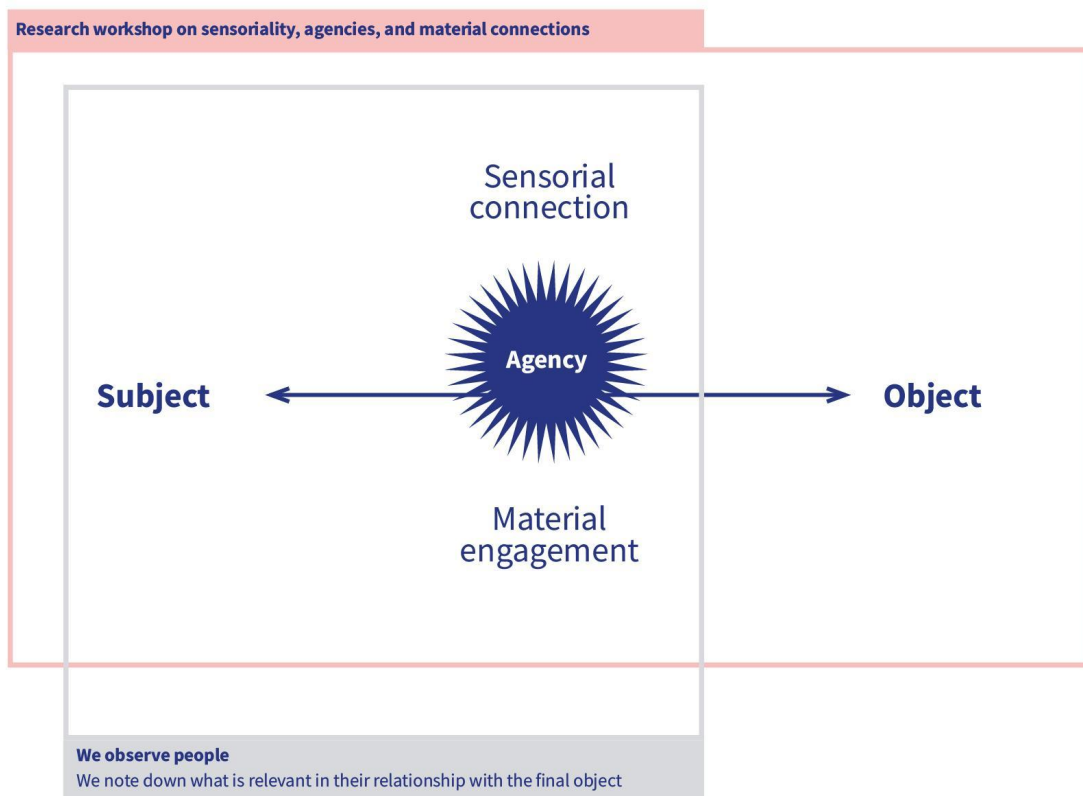


Figure 5. Relational observation of design material agency. Exploratory workshop. Source: the authors.

In the first part of the workshop, the authors/dynamizers present the basic information about the concept of material agency and the related key concepts so that participants understand the objective of the workshop and can develop it successfully.

In the second part, human participants are chosen by objects and the team of researchers observes and records the objects' level of agency, as shown in figure 5. At the same time, the participants reflect on and define the quality of the relationship they establish with their objects through a questionnaire handed out to them, whose purpose is to measure and describe the person-object sensory connection, agencies and material engagement.

Finally, participants, with the dynamization of authors, share their responses, sensations and aspects that have surprised them. They create a dialogue and come close to some first conclusions.

The questionnaire is used to collect information on how the end objects activate sensory processes (Bedolla, 2020), the level of agency participants recognise (Malafouris, 2013), and how the objects speak to the participants on the personal, social and practical levels (Walker, 2012). The participants share the experiences they have had with the object and with other human participants, and the collected data is used to validate the main hypothesis of the research, which states that end objects have an agency capable of affecting users in the more personal sphere.

The theoretical model and the questionnaire (research instrument) were improved and validated with feedback from previous workshops (a total of two).

The questionnaire is divided into four parts, which are ordered incrementally by the type of subject-object information exchange:

1. Level of agency (Malafouris, 2013; Harman, 2010; Bill et al., 2015)
 - Origin
2. Material experience (Desmet, 2012; Dezcallar, 2012; Morales, 2015; Bedolla, 2020)
 - Sensory
 - Emotional
 - Meaning
3. Interaction (Rognoli, 2018; Lefteri, 2007; Maldonado, 1993; Dezcallar, 2012)
 - Physical
 - Emotional
 - In phases
4. Facets of human meaning (Walker, 2012)
 - Personal
 - Social
 - Practical

The different sections are related in order to validate each part and help identify contradictory answers from participants. As this is an exploratory questionnaire with no extensive testing, no statistics have been used to measure the contradiction index; only a qualitative interpretation has been carried out.

The first part gathers information on the person-object relationship. Here, the object's level of agency is rated and a brief comment given on why the object chose the participant. If it is the participant who has chosen the object, a brief explanation must also be given. The premises on which the question is based are presented and discussed in the "State of the art" section.

The second part gathers data on the types of connection with the object and the qualities of this connection. Firstly, the intention is to ascertain the nature of the connection in terms of direct contact with the body, through three questions whose purpose is to explain sensations in order to identify the senses, locate the sensation in the body and provide details on the nature of the sensation generated by the object. Next, we ask about feelings through the emotions related to the sensations. In this stage, we use the list of emotions proposed by Pieter Desmet in “Faces of product pleasure: 25 positive emotions in human-product interactions” (2012). This list was developed and validated for designing positive experiences. To avoid bias in possible negative connections, the study was supplemented by the list of negative and ambivalent emotions identified by Desmet from Tomkins (1984) (*ibid.*). The emotional part concludes by asking participants whether they would add any other emotions, to facilitate open communication and collect off-the-record comments, on the understanding that the difference between sensation, emotion and interpretation is not intuitive.

With regard to the interpretative register, we ask participants about their memories, to relate the sensations and emotions of the object to the ideas that come to them when establishing the connection. As Juan Magariños de Morentin explains, the interpretative phase of the sign is fed by the subject’s knowledge, and thus can only be interpreted from memory (Morentin, 2001).

In the third part, the objective is to map the physical and emotional relationship arising from the connection. The questionnaire asks about the quantity of physical relationship established with the object (number of senses used) and the depth of the emotional connection. As emotions operate at the physiological, cognitive and behavioural levels (Dezcallar, 2012), if the object makes you smile or sweat you should indicate a high level of interaction. The questionnaire includes descriptive examples to help users rate their level of interaction. The premises for the third part are the physical and emotional dimensions (Ayala and Rognoli, 2018) and a third question is added to identify whether interaction occurs in different phases.

The information collected in the fourth part refers to how the object affects the participant, identifying whether this is on the personal, social or professional plane, on all of them, or at the intersections between the planes. This question is based on Stuart Walker’s model of spheres of meaning, as explained above.

The questionnaire concludes with an open question to make use of the participants’ knowledge and experience and gather suggestions for improvements and other connections.

Table 1. Workshop “Is this print talking to me?”. Questions for participants.

1. Level of agency	This section is aimed at studying the level of agency of the object.
	1.1. Indicate the level of agency you have perceived with the object, being 5 its maximum agency and -5 its minimum
	1.2. Why have you been chosen by this object? Briefly explain why you have been chosen, or why you have chosen it, if it has been you.
2. Material experience	Section aimed at collecting data on the type of connection with the object and the qualities of this connection.
	2.1. Sensorial experience. Questions aimed at collecting information related to the body.
	• Senses. With which senses has the object connected you? Sight / Touch / Hearing / Smell / Taste • Connection. Indicate with a cross where you have perceived the contact (includes a human body pict) • Sensations. Describe the sensations you have had, for example, cold, proximity, tension, etc. and the material part of the object that has activated it, if any.
	2.2. Emotional experience. Questions aimed at collecting information related to feelings.
	• With which other experiences have you associated the connection with the object? Briefly explain a maximum of three memories connected to the object.
3. Interaction	Section oriented to map the physical and emotional relationship arising from the connection.
	3.1. Level of physical interaction. Indicate the level of physical interaction with the object. The minimum level of interaction is understood as locating and grasping the object using the sense of sight and touch, and counts 1. The maximum level of interaction is understood as minimal sensory contact of four senses, sight, touch, hearing, and smell, and counts up to 5.
	3.2. Level of emotional interaction. Indicate the level of emotional interaction with the object, with 1 being the minimum level of interaction if your emotional state has not been affected by the object* and 5 being the maximum level, when you have thought about it again after ending the contact or have thought about taking notes of its references, or having the object.
	3.3. Interaction phases. Has your experience changed while interacting with the object? (Yes/No)
4. Spheres of meaning	Data we collect to know if the object appeals to you on a personal, professional, or social level.
	4.1. What is the impact of the object in each sphere of meaning? Indicate 1 when the object does not appeal to you and leaves you indifferent, and 5 when the object has connected with you to the maximum.
	• Personal: It has appealed to you as a person, connecting with your values as an individual, or with your beliefs, intuitively towards your inner world. • Social: It has appealed to you in your cultural context, you have shared it or want to share it with others, and it fits the social norms of your environment. • Practical: It has appealed to you at a professional, intellectual, technological level, it provides you with performance values in your environment.
5. Comments	Do you miss any relevant questions? Is there too much information? Tell us what you want to share: your help is valuable.

5. Results and Discussion

The results analysed below come from the survey completed during the workshop conducted at the ISEC Lisbon Centre for Studies Graphic Technologies, involving a total of 13 participants from the world of art and design teaching and research. Although we conducted a previous workshop in Barcelona with four participants from the field of teaching and research in communication studies, we decided to use this second source of results as comparative data, always bearing in mind they come from few participants and cannot be considered as a reference.

In the first question (1. Level of agency) we asked participants about the level of agency of the objects they chose and also their personal reasons for choosing them. With regard to the level of agency, the participants identified which object had chosen them with an intensity of 4.5 out of 5. In other words, they recognised the agency of the object without hesitation and required no further explanation.

With regard to why they chose the object, we analysed and classified the reasons using Stuart Walker's three spheres of meaning (2012). Personal reasons were mentioned in all cases, with participants using expressions such as "due to the cover with the lenticular image, which I've liked ever since I was a boy, seeing how the visual space is transformed" (L0302). Practical reasons were also included in all the answers, sometimes expressing highly technical details, such as "It shows that the same space (the cover), through a technical device (hologram), can be used for two different things" (L0303). However, social reasons did not appear in the answers from the workshop. Practical reasons were chosen in all cases and no social reasons were mentioned, although they rated this sphere when asked directly in the other sections.

The workshop called on participants to establish personal relationships with the objects, yet the participants rated the practical sphere higher than the personal, at 4.25 out of 5, compared to 3.8 out of 5 for the personal sphere.

Only in three cases did the reason for choosing the object given at the start of the questionnaire fully match the score for the spheres at the end. In eight cases (66%) participants did not mention the social sphere, but later gave it an equal or higher score than the practical and personal meanings. Finally only one case produced diametrically opposed scores, indicating that the participant had not understood the questionnaire (leaving some spaces blank, confirming the lack of understanding).

In the second part of the questionnaire (2. Material experience), which refers to the type and qualities of the connection with the object, we detected some confusion between "sensation" and "emotion" when participants were asked about the sensations conveyed by the object. The participants answered with emotions on nine occasions, an error which could be explained by the intensity of the emotional relationship established with the object, scored at 3.77 out of 5. We interpret this to mean there was an emotional impact resulting from using the object.

When answering about the participants' perceptive relationship with the object in their sensory experience, we identified an average of 2.5 senses. In the score for sensory interaction we identified 3.3 senses. As the questionnaire progressed, more senses were unexpectedly added to the perceptive relationship. This observation is analysed below. Nevertheless, it is interesting to note that in the third part (3. Interaction) participants scored the emotional interaction with the object higher than the physical interaction (3.77 vs 3.3).

Similarly, in the drawing where participants were asked to mark a cross on the part of the body where they had felt the connection with the object, parts such as the heart, head, feet and back were identified (figure 6). Even the whole body was circled in one case, suggesting more than a perceptive relationship focussed on the sensory organ, but rather a more holistic, interpretative relationship.

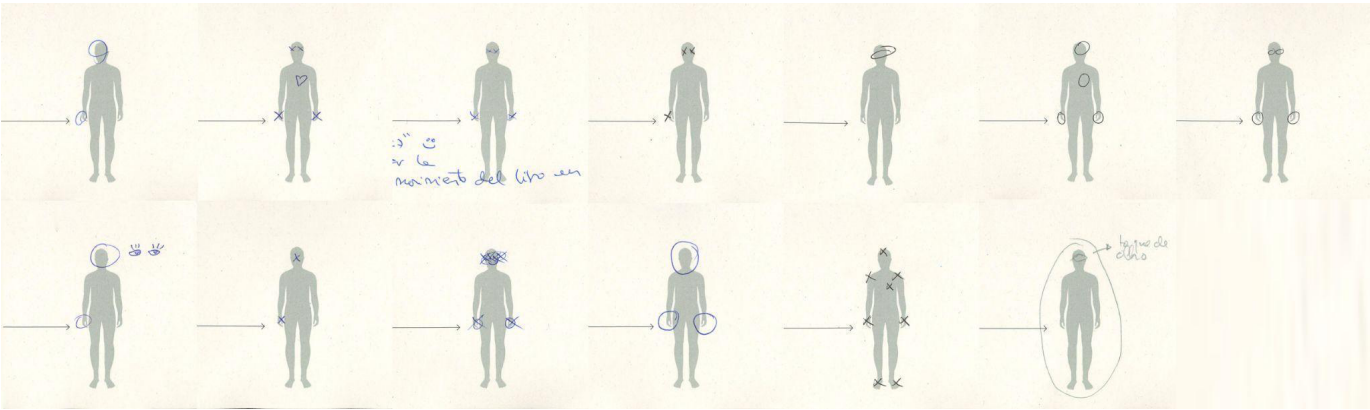


Figure 6. Sensory experience. Parts of the body in which the connection with the object was experienced.

In the emotional experience (see point 2 of the questionnaire), participants described positive and negative emotions. In the case of positive emotions (figure 7), those most frequently expressed were: surprise (10 out of 13 cases, 76.9%), fascination (9 out of 13 cases, 69.23%), inspiration (8 out of 13 cases, 61.54%), enchantment (7 out of 13 cases, 53.85%), and joy, love and satisfaction (5 out of 13 cases, 38.46%). None of the participants indicated emotions such as relief or compassion. Practically no negative emotions were indicated (figure 8). The only ones mentioned were surprise (2 out of 13 cases) and sadness (in 2 out of 13 cases). Only one person mentioned more than one negative emotion. In this case, they were anxiety, anger, sadness and aversion.

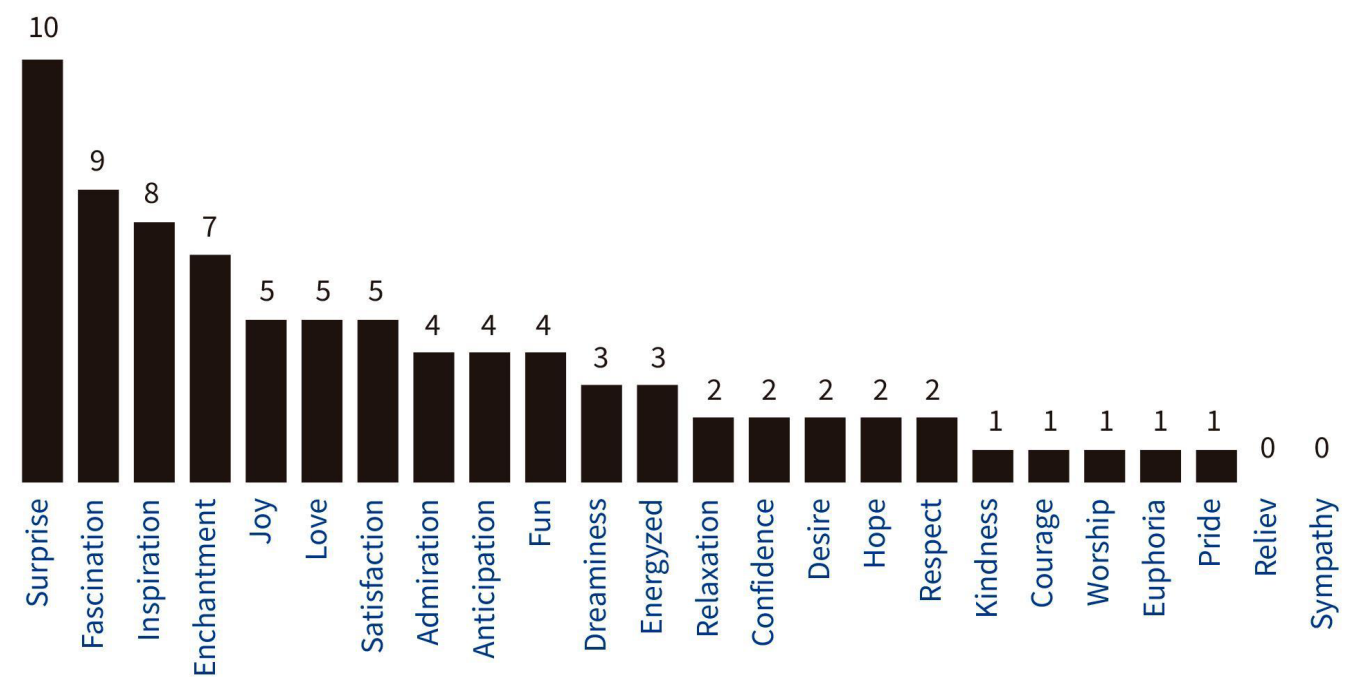


Figure 7. Positive and ambivalent emotions in the person-object interaction.

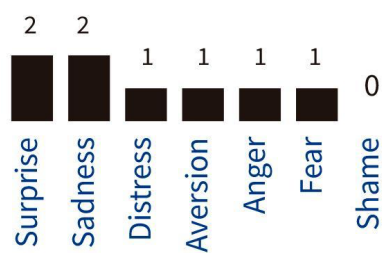


Figure 8. Negative and ambivalent emotions in the person-object interaction.

In the meaning experience (see point 2 of the questionnaire), which asks about other experiences (memories) associated with the connection to the object, most of the participants focused their narrative on personal experience (5.67 out of 10): “childhood games” (L0301); “new shoes” (L1002); or “wanting to keep the object, to run away and steal it” (L0101). Other participants related their experience to the practical sphere (5.33 out of 10): “playing when handling the object” (L0303); “typography, old-fashioned typography workshop” (L0702); “special effects used in graphic production” (L0501). Almost residually, only one person related the experience to the social sphere (0.33 out of 10): “relationships with significant people” (L0801).

6. Conclusions

Although there were a limited number of participants in this phase of the study, we have seen that the research-action works and the questionnaire permits data comparison and gathers relevant information. Various initial conclusions may be drawn with regard to the data obtained from the workshop and subsequently analysed.

Firstly, we see that there is an emotional impact after using the object. We also see that more senses are involved in the perceptive relation the more participants progress in the questionnaire. Practically no negative emotions were expressed in the questionnaire. In their observations, the researchers found that the workshop generated expectations that created an atmosphere of curiosity and a motivation to look, touch and feel the objects more actively than usual. Indeed, the first three positive emotions after surprise are those that make up the general typology of “interest”, as identified by Pieter Desmet.

With regard to spheres of meaning, it may also be stated that, after touching the objects aimed at stimulating the personal sphere, the practical sphere continues to receive higher scores. We think this is due to the profile of the participants (art and design teachers), who are used to coming into contact with printed products in their professional life. We venture to say that their ideas relate books and publications to their work environment, hence they score the objects in the practical sphere.

Finally, with regard to the level of agency, we note a striking difference between the Lisbon group of participants (13) and the Barcelona group (4). In the former group, they identified the object having chosen them at an intensity of 4.5 out of 5. In other words, they recognised the agency of the object without hesitation and required no further explanation. Despite their somewhat insignificant number, the Barcelona participants gave a very low score to the agency of the object, assigning the capacity for connection to the person. This difference may be due to the participants’ profile. In Lisbon, they had a specific academic profile in art and design, while in Barcelona they were academics, but from the general field of communication, not specifically art and design.

The low results in the sphere of social meaning seem to arise as a consequence of a bias in the analysis approach. By focusing on the object, we have neglected the social functions of objects and their effects. The entire realm of social meaning, including the staging of the workshop itself, has taken a back seat. A relevant question for the future will be how to approach the study of distributed agency while considering the social characteristics of humans without placing them at the centre.

We find several limitations about how the participant’s microculture was defined since we assumed there was a shared scheme of practices and social disposition among participants belonging to the group. But, observing how the social sphere emerged from results, we should consider habitus and cultural capital, as defined by Bordieu (2018) to gather the ideas, attitudes and other cultural attributes that impact a participant’s behaviour. Our results suggest that there isn’t an homogeneous culture; instead, there are various subcultures and social microcosmos that influence practices and human interactions. Future work should gather data about participants’ specific cultural and social patterns that develop in local and particular contexts, such as design conferences where workshops have taken place.

Future lines for the study lie above all in testing the workshop in different cultural contexts with non-expert participants. Although there were few participants in Barcelona, their contributions were different to those from Lisbon, suggesting further testing among people with absolutely no connection to the field of design. On this basis, we would reformulate the hypothesis to: “Emotional involvement and relationship with the practical sphere increases when the participants are professionally or academically related to the design field”.

Finally, we will apply the knowledge obtained here to improve the connection with objects, specifically, by providing an enriched description of elements in online materials libraries, thus seeking to overcome the distance between the library interface and the material.

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