

**visual  
communication  
paradigm/s**

# Visual communication paradigm/s

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## Abstract

This research explores the visual communication concept.

At the beginning of the developing process of this project, I decided to question my own profession. I do graphic designs (or I studied Design specialized in graphic communication), which for me means that I should manage different levels of visual communication.

Therefore, this project needed to be interdisciplinary. Through this kind of research, the opportunity for improvement increases because, in consequence, there will be more variables that can be connected.

In the course of this project, I decided to develop and understand what “see” means (the act and the conceptual signification) and also how our visual system works, which is at the same time related to the concept of perception and paradigm.

Regarding all that, I decided to expand these ideas about sight by showing different perspectives related to communicational structures and their possible applications.

Finally, in this research, I decided to carry out an experiment which represents the practical part, that connects the theory and the reflections here expounded.

The purpose of the experiment is to represent a “communicational structure” where we are going to use our visual and auditory systems and where we can also connect these both systems to the body (inner and outer) through the use of the sound and the light.

It can be used as a helpful tool to continue expanding the theoretical part and also, as an essential aspect of the research.

This dissertation “looks” like a conversation with the project itself, which, in addition, discusses communication.

Amongst visual and communicational concepts I am going to deal, in general terms, with quantum, science and methodology. The reason is because all these disciplines together help to understand how the paradigm works

where we live, as well as the possibilities that the paradigm has, in order to finally expand the idea about “graphic design”.

In conclusion, I am going to discuss these three general concepts:

- VISION; related to the possibilities that we have to change perspectives of reality and also, to get to know how the visual system works.
- COMMUNICATION; this section will help us to understand the way how we use some related tools along with how we can use them through the communicative systems.
- EXPERIMENT; seen as a way to understand and to bring some of the concepts that I am going to explain in this project to “our paradigm”.

## Introduction: to build a context

This section is going to create/explain the context in which we are going to move during the project. Thus, we begin with the visual perspective, a section that presents some quantum experiments which, in turn, are going to show us some reasons and relations that quantum has with the act of seeing.

Thomas Young (1773-1829), in 1801, carried out an experiment called Young’s interference experiment or double-slit interferometer. He demonstrated that the light could work as a wave in spite of Einstein’s idea that the light was formed of particles (photons). [1]

Finally, I “learned and understood” that the light can be both possibilities and it will depend on the question we ask to the light.

If we ask whether it is a wave, through Thomas Young’s experiment, then the light will answer that it is a wave; but if we ask whether it is a particle, through the photoelectric experiment, then the light will say that it is a particle. [2]

So now is a good time to pose the first questions about that:

- If the light can be two “different things”, why do we always, in our daily life, have the same perception of the light?
- The light brings us the opportunity of seeing, observe the “world”, watch, so should/could we ask the light how we want to see or how we want the light to act?

Later on, other scientists carried out Young’s experiment but using electrons this time (little pieces of matter) and discovered that electrons could behave both as a wave and as a particle, just like the light.

The difference between these both states (wave and particle) is that when electrons behave as a wave, they can cross both slits simultaneously, so one tiny piece of matter can go through two different places at the same time. However, when we try to observe or to measure them, then they decide to

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[1] (Fernandez-Vidal, Sonia 2013:78-84). / (Green, Brian B. 1999:148).

[2] (Fernandez-Vidal, Sonia 2013:85)

go through either one slit or the other and, in consequence, electrons are behaving like a particle.

Therefore, the key to that is in the moment when we “ask” for which slit the electrons are going to cross before electrons collapse and decide either one or the other slit options. [3]

- When we observe, are we deciding how it “the world” is/works?

Quantum has different points of view about this:

- Einstein exposed; “I like to think the moon is there even if I am not looking at it” and mechanical quantum says that the fundamental particle properties are not defined when we do not observe them. [4]

These theories question the “world” that we can/do not see. It is possible to imagine the things that we can see, but what happens with the other elements/aspects that our visual system has got no access to?

- How can we see what happens behind our “backs”?

We can imagine that everything continues behaving the same while we are not staring at it, but it might not be like that. “[...], measurements are intra-actions (not interactions): the agencies of observation are inseparable from that which is observed. Measurements are world-making: matter and meaning do not pre-exist, but rather are co-constituted via measurement intra-actions.” (Barad, Karen 2012:6). We pre-assume that the world where we live is always defined, but the quantum reality is not exactly like this.

- Does the reality need our selves, in order to be defined? Or is it us who define the reality with our presence as observers?

Reality –considering that reality is built through the entities that we can observe– will always need an observer. We cannot separate this duality.

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[3] (Fernandez-Vidal, Sonia 2013:112-113)

[4] (Fernandez-Vidal, Sonia 2013:116).

Hence, it is the perception of the reality (our experiences, beliefs, prejudices...) that builds our conception of it. [5]

It can be determining to accept that we are a part of “something” else (system) and that our individuality, as a body, does not only depend on ourselves and vice versa. We can have “personal intentions” (acts), but the consequences of our actions are going to reach further from us.

The reason for using quantum theories for the visual part is because it represents/explains the “things” that we can “still” not see, and we cannot see them because we have no access to them.

We see the world through the eyes of our experiences and paradigm. We see the “things” in the way that we know or learn about them, and for this reason, I decided to learn how we could “observe” the “invisibility”.

- Do we only see the things that we can understand as coherent?

Curiously, in quantum there is the concept of decoherence, which represents/explains the moment of transition from quantum theories to classic (our physical “world”) which depends on the conditions of the environment. [6]

- What is the observer (ourselves) doing?

Electron and photon properties are not defined in quantum state, they are in superposition (all the options at the same time). They decide to collapse or to define themselves with the observer’s presence.

- Could the observer –ourselves– define the world that we see?

If we start thinking about the concepts that are here exposed, we could as well think/imagine ourselves defending the idea that everyone can see the world differently.

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[5] (Fernandez-Vidal, Sonia 2013:120/122).

[6] (Fernandez-Vidal, Sonia 2013:138). / (Clegg, Brian-Ball, Philip 2015:52).

Hereunder, there is an introduction to the communicative section of the project.

As a designer, and also along my whole educational trajectory, I have been shown/taught the “standard communicative system”. It was always the same, and it was never changed. I will never forget it.

I am talking about these concepts:

- Source; (message); transmitter; (signal); transmission path; receiver and destination.

Obviously, a communicative act is not exactly like this. There are many different factors which alter and modify this structure. In consequence, I decided to explore some different structures, and I finally found the theories of Joan-Lluís Navarro Lluch, and more specifically his book called *Teoria lul·liana de la comunicació*.

A communicative act should be versatile because each situation that we want to communicate, each person who wants to communicate, is different, and, besides, the “receptor” is also going to modify the message. Everyone sees, feels, understands, knows the world differently. Even ourselves are in constant modification. Besides, considering that language is an important and remarkable tool to learn, then we can imagine that our eyes (vision) also affect this communicational structure by modifying the message as a consequence of the process.

What all the issues here exposed have in common is the “paradigm”, it is the “place” where we can find them all “living” together.

This project is going to suggest the possibility/necessity of a paradigm change through, for instance, new system structures.

Writing is also a remarkable fact to consider because it is one of the ways that we have to explain and to communicate our ideas with each other, it is a significant ingredient of the research, it must be kept in mind that everyone who writes has their conceptions.

When somebody writes or speaks they are in an active process: it is action! Moreover, each action has multiple consequences.

[..]“VERBA”: el llenguatge és el mitjà pel qual s’imbriquen realitat i socialitat; sempre la nostra relació amb els altres es troba mediatitzada per les coses o temes, i sempre la nostra relació amb les coses es troba mediatitzada pels altres- [...]. (Navarro Lluch, Josep-Lluís 2016:261). [Annex-i]

Finally, I would like to add two questions based on the understanding that we have about ourselves as humans beings/bodies:

- What is going to happen with the conception of the world if we, as *humans*, decide to change ourselves, e.g., by adding technology to our body?

This project aimed to tackle concepts such as post-humanism, trans-humanism and cyborg.

- Might we modify the communicative system with the world? How about with the universe? How about with other beings?

It could be a fascinating fact because we can think of that as a possible amplification of the vision, which could also change the perception and understanding of “the place” where we live.

**Vision**

SEEING:

“Si veus un ull, no és ull perquè el veges, sinó perquè et veu.”(Navarro Lluch, Josep-Lluís 2016:318). [Annex-ii]

The vision system and the light give us the opportunity to see. Vision captures basic information about the environment because it acts as an external receptor. Through the “naked eye” we have a limited agency\*, if not why should we use a telescope or a microscope, for example? Perhaps even more interestingly:

- Why do we want to see things that we *normally* cannot see, through these devices? It could mean that we are seeking the “invisibility”.

We were/are amplifying our visual sense adding tools and technologies. The act of building them might be understood as an intention to see everything that we would like to see.

With these tools, we turn invisible things to visible/real. However, the devices can have limitations and distortions even because of the way how we use them: we can change the perception of the things that we are observing.

We are always questioning what we can see through our eyes. We observe and think about our environment through drawings, mental images, writings, experiments, photography, etc., which help us to get close to understand “those things” that constitute our reality.

We can have different kinds of visions about our life-situation and understand that there are a lot of invisible places and invisible perspectives that are also real. We could consider that reality is not this “concrete” place that we are able to observe, touch and feel.

- How does our visual system work?

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agency\*: as ability of an agent person or entity to act in the world.

As an overview:

Our eyes are our main source of information, for this reason, we use a high number of neurons from our cerebral cortex, neurons that process visual information. Our eyes have got a significant number of photo-receivers as well, which can send information from more than one hundred million different points. However, our optical nerve cannot process all of this information, so it selects and compresses it. [7]

So here we have taken the first step towards affirming that we do not see everything (even when our eyes have indeed captured it). It is also the first step towards proving that this visual information that our brain receives is not literally/directly processed.

The “world” could be defined as something emotional and full of subjectivity. The world that we can see and observe is the place where we live and act. It is also the place we understand, and that is “coherent” in the way we can see it/ think of it. This place can also be mental or/and physic, invisible or/and visible and it is a place which we can or cannot understand, agree or disagree with it.

I would like to provide alternative perspectives of “the world”, it might be just a dream, but I dare try:

Necesitamos construir, por decirlo así, un mundo alternativo completo, necesitamos un mundo soñado para descubrir los rasgos del mundo real en el que creemos habitar (mundo que, de hecho, quizá no sea más que otro mundo soñado).

(Feyerabend, Paul 1986:16). [Annex-iii]

- How can we argue about what we see if everyone has different points of view?

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[7] (Martinez Ron, Antonio 2016:25).



Up to now, we (Europe's society, which is the place where I live and that I know better) have used agreements that help us with the community life and that we can call "paradigm".

This paradigm, supposedly, helps us understand and communicate our ideas. It is also a mutable structure, which can change when the ideas of the actual paradigm are broken in favour of some other ones. However, not everything might be accepted, there is a scientific structure/methodology which defines what could be accepted or not.

- Is that a mistake?

- Is *cognition (knowledge)* the one that can modify the perception of those things that we can see?

If we do not (or cannot) learn other theories, because our system "thinks" that they are not correct, or because they are not accepted within the scientific methodology, then how many information is missing here and why cannot I *live* with all the possibilities?

There is one more thing that helps us expand the visualisation, and it is the connection our hands and eyes have, as Emiliano Bruner (1972-) –a researcher specialised in pale-neurobiology– defends. This concept is called "visual-spatial integration".

When we build, design, experiment, model, etc. we do it thanks to the connexion between hands, objects, eyes and brain. E. Bruner exemplifies this connection with the stick that some blind people use daily. For him, this stick is integrated into the body, and it works as an extension of the hand. He defends the idea that the objects and the body can be in common relation. [8] So again, we deal with the connections that the body can have with "external" objects, which can amplify or, in some cases even replace (in a different way), one or more senses. The things that we can touch help us to understand them better, as well as to have a different conception of the world. They help us amplify our vision and knowledge.

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[8] (Martinez Ron, Antonio 2016:28) / (Emiliano Bruner interviewed by Amela, Víctor-M. 2014).

Moreover, related to objects and structures that we can see and touch, I have found a "curious" example about objects that some cultures built:

- One of these objects is the tetrahedron structure, which is considered the first platonic solid, and, as we know, this structure was also related to the Egyptian pyramids. This geometric figure underlies all the physic universe; we could even say that it is the design of a fundamental structure, because energy becomes matter through it. It is also related to the subatomic structure. [9]

- Could objects be a part of our mind and expand our vision?

- Which kind of objects –that we could find in our surroundings, e.g., in our homes– will modify or are modifying our conception of the world?

- Could we consider that the relationship that we have with the objects that are part of our physic reality through the hand-eye system are also affecting our vision of the world and the way it is built?

If we focus on the explanations that we have read up to this point, considering the questions and examples, we can conceive that we have a complex and alterable visual system, from the way how it works to the way how we can understand/perform this information with our brain.

Perception is full of knowledge! In this respect, when we perceive something, it is because we have "learned" it. Therefore, our brain constitutes the reality that it can "understand and transform" through the things that we have learned by reading, seeing and experimenting; we can train our eyes! For example, a biologist will not see the same when they look a plant than what a taxi driver would see, and vice versa. Each person develops their own vision, based on the necessities that they have for their job, or depending on the place where they live. [10]

- What is happening with the evolution of our vision nowadays?

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[9] (Navarro Lluch, Josep-Lluís 2016:257).

[10] (Martinez Ron, Antonio 2016:69).

Emiliano Bruner, and based on his research, concludes that the morphological evolution of our face and cranium is deforming the ocular globe, which definitely means that people now are more myopic than before. We may be improving our mind, but we are losing vision. [11]

- Are we aware of that?

Perhaps we are tired of gazing. We use vision every day, and we use it for an infinite kind of applications, such as video games, social media or design software.

- Are we bringing the vision to a standstill?

Perhaps we are giving so much importance to the things that we can see, that this is consequently, making us “bad users” of the vision.

“Cierre un momento los ojos y vuélvalos a abrir. Si quiere, manténgalos cerrados hasta que la oscuridad le parezca perfecta, sin asomo de imagen.” (Del Guidice, Daniel 1987:70). [Annex-iv]

- Are we visually uninformed?

- Is our obsession with seeing turning ourselves blind?

It is important to consider the vision as a remarkable tool to be in contact with the world and to help us understand “things”, but vision does not explain everything, and there are some other ways to recognise “things” without looking at them.

El parc d'escultures dels afores del centre és d'una mida aproximada de dotze camps de futbol - o quinze, o cinc, però molt més gran que qualsevol era -. Aquest és el tema, les dimensions, la sensació de vastitud, i no sé si ve de dins o de fora, vull dir que no sé si és condicionada pel que jo sé de la mida del continent on estic ara instal·lat o realment es nota, es pot notar. El propi coneixement condiciona a l'hora de percebre la realitat; modifiquem

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[11] (Martinez Ron, Antonio 2016:28).

l'entorn, sí, però fins quin punt? [...]. Canvies de lloc per destruir la pròpia perspectiva i amb els bocins enlluernats pel que has viscut, fer-te'n una de nova, més calidoscòpica, que pugui captar la llum d'altres angles - canvies d'ulls, canvies d'idees, canvies d'ulleres -. Mudes la pell i, transvestit, en tornar encomanes el virus llunyà al teu entorn immediat. Així s'escampi l'epidèmia, així resisteixi el món l'atracció irresistible del propi melic.

(Sales, Marti 2015:46/47). [Annex-v]

There are some other concepts about vision, the peripheral and unfocused. To begin with, Juhani Pallasmaa (1936-) says that the unfocused one confronts us with the world, and the peripheral envelopes us with the world's skin. He defended the idea that all of our senses are extensions of the touch. Ashley Montagu exposed:

(La piel) es el más antiguo y sensible de nuestros órganos, nuestro primer medio de comunicación y nuestro protector más eficaz. [...]. Incluso la transparente córnea del ojo está recubierta por una capa de piel modificada. (Pallasmaa, Juhani, 2006:10). [Annex-vi]

Pallasmaa also argues that the unfocused vision has the same relevance as the focused one and that there are medical tests that prove that the peripheral vision has more relevance in our perceptive and mental systems. Furthermore, this last one integrates us into space, whereas the focused one turns us into spectators. It could be related to the moment when we look: we observe “reality” as if we were spectators of our life, and in the meanwhile, the unfocused vision has not got our direct attention and can be integrated into the rest of the world, be a part of it. [12] Somehow, vision expels us from reality. We cannot build a world only through vision, but it can add more experiences to the body because when we look at something, it can have emotional and physic consequences.

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[12] (Pallasmaa, Juhani, 2006:10/13).

## SUBJECTIVITY AND KNOWLEDGE:

I would like to start this section by trying to describe the word QUALIA:

- It is related to the mind interpretations. Qualia is the way how the brain explains to us those entities that we cannot define. It is the subjectivity of our personal experience.

It is more or less like the feeling that we have when we see, for example, a rainbow, or when we feel pain. Those are situations that we know as real, but that we cannot transmit literally. It is also the way that we feel/describe those "entities" that we cannot explain/communicate, but that are part of our inner reality, e.g., the things that we can see and, in general, feel through our senses.

Therefore, there is some information that we can feel like a real feeling, but that we cannot concretely explain, represent and see, perhaps because we have no words for this, or because the communicative system that we use does not accept this kind of communication.

However, the most interesting aspect of this is that this kind of feelings can also come from the information that we capture with our eyes and that the brain receives, and which finally our "body" interprets and communicates "internally" to us by a feeling. Moreover, it is interesting to define because if we think about the distance that there is between the object and our eyes, although it is not a "direct" contact, in the end it has "direct" consequences that we can feel in our body (physically and emotionally). [13]

- Which are these kind of images (situations, perhaps) where "qualia" takes action?

- Is qualia a close *image representation* of reality?

At this time, if we take into consideration qualia as a kind of visual consequences, we could consider it as an "invisible" translation of the perception that we have from reality through our eyes. This translation is an "instinc-

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[13] (Martinez Ron, Antonio 2016:72)

tive" process of the body. It is as if our whole body could see indeed.

Some images come to my mind at this moment, images that thrill me, those that I cannot describe with words but that nourish my imaginary, my mind, my inner life, definitely, a world that I cannot explain.

- What happened when "scientists" began to observe through the artefacts that they built, e.g., the microscope?

Firstly, these scientists did not understand what they were seeing. It is/was another dimensional scale, which we could consider a new world, and that they should build/understand in order to begin to describe the "visions" that they were observing. They developed multiple interpretations, and some of them decided to explain this new reality with visual objects and materials that people could "understand". For example, the representation of the DNA structure using sticks and balls.

It is interesting to analyse the process that they followed in order to comprehend the new things that they were observing through a microscope. They transformed the visual information into another visual system to grasp and to communicate these new ideas, dimension and world.

- Was that a mistake? I would say so, because if we observe the DNA through a microscope, we are never going to see sticks and balls. [14]

Then, it is not a literal visual representation; it is what "a single" person imagines. We cannot visually learn how the real vision of DNA is through these sticks and balls; we can only understand how it approximately works. Consequently, we have created different visual representations by "transforming" one reality from another dimension using the options that our physical reality has given to us.

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[14] (Milne, Joanne Leonnie in Murad / Eina lecture, 03-05-2017).

Continuing with the DNA example, and putting the focus on aspects of its representation process, it could be of interest to add another personal perspective:

- Imagine a situation where we could try this process: in a moment we discover something “new for us”, and we want to express it or use it, but this “new” thing seems out of our paradigm, then this could be kind of a game where there would be opportunities to connect both “worlds”, for example, through the language, by creating “new words”.

- Could these new words be used as a *link language*? A kind of language which would focus only on making connections. “The connective language”.

- Could we also do that with images (the connective images)? With objects, even?

Telescope had/has visual problems similar to the ones of the microscope.

It can be easy to understand the problems that people who looked through these devices for the first time had. The size of the elements that we cannot see in our physical environment is modified, and it can be difficult to comprehend it the first time, even less easy to define.

- What comes from reality and what comes from an illusion? [15]

With this last question, we could ask ourselves whether we, when observing for the first time, are ready or not to discern if it is an illusion. The question can also have a connection with the subjective vision that we have about the environment.

“Nadie tiene realmente una disponibilidad inmediata a cualquier contacto, a proyectarse fuera de sí sólo como cuerpo, sin una reserva, siquiera mínima de interioridad.” (Del Guidice, Daniel 1987:146). [Annex-vii]

The relationship/contact that we can have with “others” is a reaction that

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[15] (Feyerabend, Paul 1986:107-108).

can go from inside to outside.

Nowadays, it is possible to “implant technology” in our body. However, what happens when we want to have an internal conversation/experimentation with this technology?

- How could we do it directly through our body, being conscious and without needing any external technology?

We can externally create and program “something”, and then personally decide to introduce it to our body with all of these external ideas. Finally, in the moment in which this is inside of our body we would not be able to manage it consciously from the inside, we would need externality to keep the conversation going. It would have internal consequences too.

[...]la percepción no puede dirigirse en la dirección que uno quiera. Y en ciertos casos podemos demostrar que las desviaciones de “una versión fidedigna de la naturaleza” ocurren en presencia de un conocimiento detallado del objeto y junto con otras representaciones más realistas:[...]. (Feyerabend, Paul 1986:229). [Annex-viii]

It is like that when we add the plus of emotionality in the representation of an image: then, this image represents “the/one reality”. What also means that reality is not only exclusively the vision.

Related to the connection between colours and shapes:

Ewald Hering (1834-1918) was a German physiologist. He realised that our perception is influenced by our memory. We can memorize shapes and colours. It means that, when we see a quotidian object, our brain process –through the memory– is to recognise the colour and shape, and, for this reason, even if we change the illumination, we will still identify the original colour –the colour depends on the light that bounces on the object.

This process is called “colour constancy”.

Anya Hurlbert, from the Newcastle University, has experimented with some people the connection between colour constancy and shapes. These experiments can help us to understand this visual process:

- A. Hurlbert projected several yellow tones on a generic surface, and then she asked the subjects which of those tones was closer to the yellow banana tone.

The subjects rejected most of them, but when she swapped the generic surface for a real banana shape and projected several yellow tones again, then, most of them were accepted, even using a lot of different yellow tones. She performed one more experiment related to this, and finally she concluded that the shape of the objects is influenced by the memory that we have of them, and that it also influences the way how we perceive "reality." [16]

It is as if our brain would like to reduce the reaction time of the visual process to be more "effective", and it can make sense. Vision helps us with survival, e.g., if we see danger we will quickly identify it by this "colour constancy" process and we will be able to run away from it.

However, what would happen if we were in a new environment with different dangers? Then, should we visually learn what they look like, and memorise it?

Our brain analyses and interprets the colour depending on context, illumination, shapes, feelings, among others. Colour can also be altered by the time and by our presence in a situation. Every single detail influences the perception and everyone is influenced by their own interpretation.

"Recordamos a través de nuestros cuerpos tanto como a través de nuestro sistema nervioso y de nuestro cerebro." (Pallasmaa, Juhani, 2006:47). [Annex-ix]

So, vision is a "limited" sense, and, for this reason, if we want more information about what we are seeing, we should find some other way to ob-

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[16] (Martinez Ron, Antonio 2016:172-173).

serve and analyse the information that we receive through our eyes. Sight is important because it is a system connected with other systems.

When we mention subjectivity we act from inside to outside of our body, and modifications to this subjectivity can come from the activity in both places (inside and outside).

- Do we need ourselves to be subjective beings?

- Can the subjectivity come from another "place"?

- Do we need ourselves to talk subjectively?

"[...]l'essència més potent de cada ser humà, la "subjectivitat sense subjecte"." (Navarro Lluç, Josep-Lluís 2016:295). [Annex-x]

We have to eliminate the idea that our senses give us the real concept of reality. Perhaps reality is not real at all.

Paul Feyerabend (1924-1994) exposed some ideas about the visualisation through a telescope, which might have a similarity with the situation that scientists had with the microscope. He presented the idea that our senses are familiar with the immediate appearance of the terrestrial objects, and that they can, in consequence, perceive them distinctly. He also defended, with the example of the telescope, that we cannot immediately recognise through vision, nor through any of the senses, those things that are observed for the first time, as we cannot use our memory to separate what the telescope contributes from what comes from the observed object itself.

[17] We cannot be sure about what our eyes are seeing in this first contact with "a new reality".

Continuing with these concepts, the following paragraphs develop the idea that there may be a connection between subjectivity, memory and/or perception. Feyerabend took Loewy as a reference, who, based on psychological mechanisms, exposed:

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[17] (Feyerabend, Paul 1986:110).

Junto a las imágenes que la realidad ofrece al ojo físico, existe un mundo completamente distinto de imágenes que viven o, mejor, adquieren vida sólo en nuestra mente y que, aunque sugeridas por la realidad, están completamente transmutadas. (Feyerabend, Paul 1986:222). [Annex-xi]

In this fragment of the project, we can learn that vision is a process that does not work alone, and that has influences even from its own system. If we want to represent an image, or analyse one, it should be correct to use feelings, impressions, consequences (physic and psychic), in its description, and we should also keep in mind which is the message that we would like to send through the image, and why.

### QUANTUM AND INVISIBILITY/REALITY:

[...] otras salvas llevaron a las alturas estrellas de rayos blancos de las que nacían estrellas de rayos verdes, luces rapidísimas y fulminantes, a las que probablemente los nitratos y los cloratos, auténticos almacenes de oxígeno, daban velocidad de combustión, y así el aire se transformaba en luz [...]. (Del Guidice, Daniel 1987:163). [Annex-xii]

There were/are a lot of different scientists who, thanks to their experimentation with the light, helped to understand, in the end, how the matter's structure was.

The matter is almost everything that we can see around us, and light is what helps us to see it.

Thomas Young discovered the double attitude of the light. As it is explained in the introduction part, Young's double-slit interferometer experiment was selected as an example to explain why the light acts like that, and how the vision and the observer's presence affects it.

Due to quantum, we know that the light can be wave or particle and that it depends on the question we ask or the experiment we perform.

- Does the light also act as a spectator?
- If we can see it, why cannot it see us?
- Is the observer an observer, because they are, in turn, observed?
- Why is that so important?

Because we can consider the light (artificial and natural) as one of the most important factors for our survival. We can see (the time and the world) and live due to it.

Focusing on light's double attitude, it makes sense to think that what we see and how we see through the light is not always the same; light can also affect the perception of colour and shape.

Later on, in 1924, Louis de Broglie (1892-1987), in his PhD thesis, defended that this double property was not exclusive of the light: electrons had the

same feature. [18] However, what is an electron? It is a tiny portion of matter, and that is interesting because it modifies the question; “what do we see?” or “how do we see?” to:

- How does everything that I can touch (or not) and see (or not) around me work?

De Broglie inspired by Einstein’s special relativity, suggested that the duality wave/particle could not only be applied to light and electrons. Mass must also have also a wave expression, which modifies everything that we can see. [19] If everything that we can see –e.g., colours, shapes, matter structure– is variable, and according to quantum, they are living in different states at the same time, then:

- Should we change the way how we see?

Maybe it is time to start to imagine that we could live with all of the possibilities and how this world could be if we add technology to change the way of seeing, to alter reality or objects, for instance.

However, what happens now with our actual paradigm and quantum?

As some quantum thesis expose, things should be observed to be located; so, what happens when we are not observing?

There is not just one reality: we have different possibilities that “coexist” in time and space and that will collapse, in the end, with the observer’s presence, who cannot choose the result. We could say that we work with the reality, but we cannot control the consequences of our presence. Nevertheless; could we change the way of being in the world, the way how we present our presence?

“Feyerabend is often understood to have been a proponent of scientific realism who believed that scientific theories tell us about a world which exist independently of measurement and observation.” (Oberheim, Eric 2006:10). There is one thing that we can still not see, and it is the concept that defines

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[18] (Fernandez-Vidal, Sonia 2013:86).

[19] (Green, Brian B, 1999:156/157).

the process of going from the quantum world to the macro world (physical reality). This “process/transition” is called decoherence, and it is defined as a delicate state.

It is when quantum loses its rules, and then takes part of our reality with the rules that our paradigm has defined. [20]

- Could our current paradigm work through the quantum rules?

About the “problem” that we have with measure and observation, and the co-existent possibilities, we should think that there are indeed others points of view; for instance, the Copenhagen one, presented by Rhob, and some more, such as Keruz, Ttreve, Bohr, Mhob, among others. Each of them has got a different understanding of it, and nowadays, we still do not know how we can protect the decoherence process. [21]

- Could decoherence come from our awareness/mind/presence?

If we, through personal experiences, can modify our perception and knowledge: what could happen if we found quantum situations, which would provide us personal experiences, which in the end, would take part in our memory?

- Which kind of perception do we need, in order to understand decoherence?

The experiment carried out for this project “performs” a quantum situation. Although it is not obvious, and we cannot see it with the naked eye, it could be the beginning of working with this knowledge in the field of the visual communication.

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[20] (Fernandez-Vidal, Sonia 2013:137).

[21] (Fernandez-Vidal, Sonia 2013:139-150).



[...] tanto las teorías como las observaciones pueden ser rechazadas: las teorías pueden eliminarse porque estén en conflicto con las observaciones; las observaciones pueden eliminarse por razones teóricas. Por último, hemos descubierto que el aprendizaje no va desde la observación a la teoría sino que implica siempre ambos elementos. La experiencia surge siempre junto con las suposiciones teóricas, no antes que ellas, y una experiencia sin teoría es tan incomprensible como lo es (supuestamente) una teoría sin experiencia. (Feyerabend, Paul 1986:155). [Annex-xiii]

Will people who are living in a “coherent” life see the life always in the same way?

- Is it a personal decision? Will it ever be so?
- Living in coherence means also living in a paradigm?
- Should we represent decoherence to change the paradigm, and to break the actual coherent state?
- How would a decoherent life/reality be?

In quantum, all realities/possibilities can exist simultaneously, but what happens with our paradigm, that we have not chosen?

One might consider that there are other worlds out of the paradigm and that some of them are not common, such as the imaginary part of the life, the subjective one, the dreamed one, among others.

R. Feynman (1918-1988) said that nature is absurd. Through quantum mechanics, he defined the nature as something absurd that coincides perfectly with the experimental tests. [22]

“[...], la visualización en su conjunto podría parecer cualquier cosa: [...].”  
(Del Guidice, Daniel 1987:29). [Annex-xiv]

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[22] (Green, Brian B, 1999:167).

*What is an issue is the very nature of nature.* (Barad, Karen 2012:6).

- Do those examples explain that we see the things that we are able to *understand* and recognise?
- Is there a concrete and shared reality? Is that an absurd question?
- If everything is in constant change, how can it be possible to see *the same* every day?

Feynman has many examples of perspective where he exposes the absurd concept that he defended. In the following example, we can read how the contradiction that reality can have between light and wave or particle can be represented:

Si lanzamos una luz contra un cristal,[...], no sabemos predecir con certeza el recorrido de un solo fotón, pero sí podemos predecir el porcentaje de fotones que pasará al otro lado. Entonces ¿qué es la luz? ¿Una onda o una partícula?

[...] la luz es algo como las gotas de lluvia [...] y, si la luz es de un único color, todas las “gotas de lluvia” tienen el mismo tamaño.

(Martinez Ron, Antonio 2016:262). [Annex-xv]

The definitions used here of light and the visual system, taken from quantum theories and philosophical reflections, will help us connect the concepts of “reality” and “world” so that they can be represented, as well as the visible and invisible part of the reality.

This invisibility might as well be a singular element that we cannot observe yet, meaning that the invisible parts are those that we cannot perceive because we still have not found a definition of them.

- Is the invisible element in the darkness?
- Could we mention, to describe invisibility, some concepts about black holes?

Black holes can also be related to the concept of the space and time, and to the light as well.



Some theories refer to the possible existence of many different dimensions. However, which are the “basic” dimensions through which we can explain and represent our reality?

We all, when we walk, are delimiting three spatial dimensions (1; up-down, 2; right-left, 3; in front-back) and also a 4th dimension, which represents time (future-past).

With the three spatial dimensions, which are independent between them, each person decides to move by combining them.

So, when we walk through our reality, we make, at least, three different selections, and we can also, in this quotidian action, add the fourth dimension, the time, to determine when this action is happening. [23]

- Can we lose the perception of time and space while we are looking at something –e.g., the world? a photograph?

- If I can lose, for a moment, the perception of space and time, will my position and time still exist?

In the relativity theory, we can find the connection between space and time. The passage of time can depend on the velocity of our movements, but we cannot observe this effect because we move at a very slow velocity indeed. In conclusion, this theory states that there is no existence of an absolute specific movement because it is relative. There is neither an existence of a universal clock.

Our movements amongst each other, at a different speed, produce distortions in the pass of the time. Time runs faster for the one who is in movement than for the person who is at rest.

For example, when we are driving a car, the observer who is looking at us driving, will see our car smaller in the direction of our movement. So, again, vision can also be modified by time and movement. [24]

The conception of reality, as we know, can conflict with these theories.

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[23] (Green, Brian B, 1999:268).

[24] (Green, Brian B, 1999:77-83).

If the “place” where we live, we move, and we act, is alterable and is constantly altered; what is more, if the perception of our visual system is not the same amongst other humans, how could it be possible to keep it “coherent”?

La teoría de la relatividad implica, al menos según interpretación aceptada por Einstein y Bohr, que no existen propiedades inherentes de la clase enumerada, que las formas, masas, intervalos de tiempo, son relaciones que se dan entre objetos físicos y sistemas de coordenadas por otro. La teoría de la relatividad suministra, además, nuevos principios para la constitución de hechos mecánicos. (Feyerabend, Paul 1986:271). [Annex-xvi]

The traditional vision of space and time has rigid and objective structures. Relativity puts action in relation to static objects.

Through this theory, it is possible to perceive the observer and modify the conception of it; the observer can be affected by the space and time that alter it. For instance, even in a painting (which is an image representation) we often see objects represented partly invisible. Consequently, we can interpret that the “object” is in movement. [25]

This is an attempt to translate the visual perception of reality. So, there are also a visual codes that we have learned and created which give us the opportunity to understand the intention of a “static” image, which can represent movement and time. Indeed, our knowledge about this code reminds us to consider this specific meaning.

No matter what a work is about, it is always also about time: when I see a mark made by a human hand, I cannot help but think, or feel, the time that went into making it. My muscles replay the mark unconsciously, as my eye retraces the line: all artworks are made by marks, and a mark is the trace of time. (Elkins, James 2017:9).

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[25] (Elkins, James 2017:5).

Time does always give us clues about the influences it has in our lives and helps us to understand how an image talks to us.

There are many other examples in quantum that explain the relativity in our perception of reality. Hence, based on many perspectives, and based on many different experiments, it can be categorically stated that everything we see is also part of a mental process affected, among others, by our knowledge, experimentations, background, evolutionary consequences, rigid paradigm structures, limitations from our own beliefs and fears. We do not live in a concrete world, and it is neither a definite world. Thus, it is possible to change the perception and the way how we receive information, and this research is an attempt to “turn on” invisibility, somehow.

We will need alternative conceptual schemes, which means that we are going to need different “languages”. This topic takes on special relevance if we bear in mind that these quantum objects are not minuscule, invisible, phantasmagorical entities of microphysics but that there is an increasing number of quantum microscopic effects. [26] Quantum is coming to us, and we are approaching quantum. It can be considered that it is going to be inevitable and it will have consequences on our daily life, even on us and on our senses as well. It is going to open a new conception of reality, and could be interesting to consider that it will also expand our perception of the universe and our position on it.

For this reason, this may be a good time to start developing new systems, languages to become, in the end, an integrated element of the whole infinite system.

We might be able to do that either as we “prefer”, or in the way we find more coherent with the current paradigm –which is going to change anyhow, what means that everything that we can imagine may be entirely different at another situation.

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[26] (Mataix, Carmen. Rivadulla, Andrés, 2002:144).

### LOOKING FOR IMAGES:

One of my interests is based on the way how I can generate an image, either static or dynamic, from where to where (camera to film, or from other kind of “artefacts” to different supports), finding a process to capture or not an image, which can also be interpreted as a moment of “stealing time”. We can apply different communicative structures to one image; these structures are going to work together in a shared situation.

Photography represents on a bidimensional surface four dimensions at least, which in turn have multiple interpretations. The same as when you try to define a reality. Images could be the gesture that transforms the reality and also the way how I understand it. [27]

Once we know this, when we take pictures with a digital camera, we will be able to think about feelings to the same extent than about the representation of the situation where we are involved.

Digital cameras exist thanks to the manipulation of the quantum world. Transistors gave us the opportunity to build electronic chips. [28]

If we look at the things that are surrounding the situation the we are going to photograph, we can focus on the elements that are more interesting for us, without caring about whether a single object is relevant or not to the situation. If we focus the attention on the little details which are outside the global situation of the very moment in which we are, then the context is going to be entirely different, and the understanding of the general situation will turn around another point of view, and around another meaning. However, what could happen if we began to search things that we cannot see or observe, and tried to generate an image of them?

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[27] (Flusser, Vilém 1994:99).

[28] (Fernandez-Vidal, Sonia 2013:160-161).

- How could we represent the invisibility as *something* recognisable?

This change should begin in our mind and modify the way/action how we look for those things with a camera.

- As long as we decided to use technology, which kind of device would we build to represent through visual codes something that we cannot visually describe?

Nonetheless, continuing with the camera example, there may be more variables at stake, we can modify/alter the image intentionally even with the technique we use, provided we know how to do that. We can even work with it through the errors the camera has.

- What happens with the things that the camera is not ready to capture?  
- What happens with those that it does capture and that we cannot see?

Imagine that we had invisibility in front of us, every day, all the time; then perhaps we would like to represent this that we cannot see, so to give this the possibility of happening.

Continuing with the photography example, it is interesting to bear the subjectivity in mind as a process which depends on the camera. [29] There is a connection with the camera that involves hands and eyes which may be related to the hand-eye system.

The texture, the weight, the emotional feelings towards the object, which may have been a gift from someone for whom we feel something special, all of these can create an emotional atmosphere that will involve and affect the purpose and the final image's atmosphere the camera will capture.

We shall move on the next issue, subjectivity, which can partly be the consequence of the connection between other facts (external ones); subjectivity, in turn, can be composed of subjectivities, or in other words, can be based

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[29] (Flusser, Vilém 1994:100).

on other people's experiences.

To get an idea of what subjectivity would look like, we could think of it as a fractal diagram/image, which would represent the connection between ideas, memories, words, images, amongst others.

It must be kept in mind that sometimes we cannot "exactly" control the connections between all of this information; our memory often makes these connections for us. It might be explained as an instant connection that makes us remember an image, for example.

These could be those moments when we suddenly remember something, which our mind links –for whatever reason– with the current situation in which we are involved.

It is like something instinctive which can help us connect ideas from situations, objects, which, in turn, are part of other subjectivities.

Imagine, for instance, that you have a friend who has a special object from their brother, but that, for some reason, this same object reminds you of your secondary school teacher. Your personal signification of the object could make no sense to your friend because they feel something different towards it. In consequence, this object will have two realities at the same time, and it will have more definitions and possibilities because it will have more subjectivities.

The same happens with knowledge, images or reality. Subjectivity can be something plural to share with the world.

All the things that we know, and all the things that we will ever learn, even those things we are currently reflecting on, come from other beings that, at the same time were/are/will be affected by the same "subjective" process.

[...]identity[...] can only affirm itself as identity to itself by opening itself to the hospitality of a difference from itself or of a difference with itself. Condition of the self, such a difference from and with itself would then be its very thing...the stranger at home. Individuals are infinitely indebted to all others, where indebtedness is not about a debt that follows or results

from a trans/action, but rather, a debt that is the condition of possibility of giving/receiving. (Barad, Karen 2012:15).

William Herschel (1738-1822) was an astronomer who realised that, while he was looking at some solar spots, the red filter that he was using warmed up more than the others. Through a prism and white light, he produced a rainbow and placed a thermometer on every colour of the spectrum. He discovered that the temperature was warmer outside of the “visual” spectrum. He discovered the existence of a part of the light that we cannot see. It was the infrared light.

A year later, and with the information about Herschel’s experiment, Johann Wilhelm (1776-1810), who was investigating the light out of the visual spectrum, repeated the process with the prism, but he used silver chloride instead of the thermometer. So, with the analysis of the invisible part of our spectrum, and realising that there is an invisible part of the light, we began to get closer to photography. Curious indeed! [30]

Es probable que si lo fotografiamos con una película infrarroja nos ofrezca una imagen distinta a la que tenemos de él a la puesta del sol o después de un temporal. Cuantos más aspectos conocemos de una misma cosa, más la apreciamos y mejor podemos comprender una realidad que antes se nos aparecía bajo un único aspecto.  
(Munari, Bruno 1985:58). [Annex-xvii]

On the other hand and to conclude this section, it could be relevant to take into consideration more kinds of images.

All along the development of human perception, there are some physiologically-determined systems which lead to incommensurability –a concept that will be largely treated in the methodology part.

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[30] (Martinez Ron, Antonio 2016:172).

If we focus on incommensurability at childhood, these above-mentioned systems are not yet entirely developed and at some stages of a child’s perception, objects seem to behave similarly to post-images.

- What is a post-image?

El postfenómeno de la adaptación perceptiva da lugar, en determinadas circunstancias, a los llamados postefectos.

El postefecto se refiere a los cambios que sufre el juicio sobre un estímulo, como consecuencia de la exposición prolongada a otro estímulo inmediato anterior. (Aznar Casanova, J. Antonio, Psicología de la percepción visual, “Universitat Barcelona”). [Annex-xviii]

Based on this definition, there are two kinds of post-effects –positive and negative– which have a classification of different kinds of post-images, e.g., chromatic, spatial, motor, movement, etc.

There is yet another part of our lives where the perception that we had in our childhood changed. This happens when the “concept” arrives, and so the perceptual images of the material objects change. At that moment, behaviour changes and thoughts begin to be built with opinions, which are based on the observations; however, post-images still exist. So, the previous visual world will disappear, and a new conception of the world will emerge. Feyerabend defended that these phenomena should be called “pseudo-post-images”, which are related to the transition from the Newtonian mechanics to the special relativity.

This two kind of “images” are not considered as evidence, whereas supposedly the new conception of the material object is. In conclusion, these two kinds of images are incommensurable; we cannot connect them logically nor perceptually. [31]

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[31] (Feyerabend, Paul 1986:219-220).

## CONCLUSIONS OF VISION:

¿Es razonable esperar que cambios conceptuales y perceptuales de este tipo ocurran sólo en la niñez?

¿O, ciertamente, no es más realista suponer que todavía son posibles y deben estimularse cambios fundamentales, que entrañen inconmensurabilidad, a menos que quedemos excluidos para siempre de lo que pudiera ser una etapa superior del conocimiento y de la conciencia?.

(Feyerabend, Paul 1986:220). [Annex-xix]

Many things are connected, and it is important to keep seeking and not to accept the reality that we can see, for one reason: not all the things that we can see exist, and not all the things that exist are visible to us.

It is relevant to observe the world through our eyes, cameras, drawings, and so on, as something that can work as a node of multiple subjectivities and that can expand knowledge and ideas.

Everything that we want to understand, or a big part of it, comes or goes through our eye system. It can be important to take into consideration what happens with people who have a limited visual agency, in this case, is possible to add tools or/and devices which can expand other senses with the aim to perceive, in other way, what is visible. This kind of vision can work by making associations or/and by making other representations of the visible elements. The knowledge that is going to come from these processes and the way to understand is going to be different.

- Does it alter vision signification/meaning? does it add new connotations to the original meaning?

Somehow our evolution and knowledge depend on the system that we are going to use/generate through our senses.

Cuando se quiere pensar con claridad, tiene que reprimirse la nitidez de la visión para que los pensamientos viajen con una mirada desenfocada y con la mente ausente. La luz brillante homogénea paraliza la imaginación, al igual que la homogeneización del espacio debilita la experiencia del ser

y borra sentido del lugar. El ojo humano está mejor afinado para el crepúsculo que para la luz diurna radiante.

La percepción, la memoria y la imaginación están en constante interacción: el dominio de la presencia se fusiona en imágenes de memoria y fantasía.

(Pallasmaa, Juhani, 2006:48/61). [Annex-xx]

**Communication**

## LANGUAGE AND VISUAL COMMUNICATION:

Firstly, in this part, we will take into consideration the connection that is possible to make between visual communication and graphic design.

The first section of this project has expanded some of the ideas around the vision concept, and the following lines are going to connect them with the communication. These two concepts can expand graphic design's usability and the idea that we have of this kind of design.

The first way in which we can address this connection is with the relation that can exist between the visual perception of typography and the linguistic ideas, so to create a concept with the goal of communicating. Graphic designers use typography at different stages during the designing process of a concrete product.

To begin with, here is an example:

- Large companies, now and then, sell the same product in different countries around the world. They use "different" (or slightly similar) strategies for the "visual communication" and they even sometimes do the same with the name of the product. It is because companies understand that society lives differently in every part of the world and they also know that there are different languages and visual codes.

We can use visual codes with intentionality, and the same applies to typography.

"Graphic" designers can work with colours, sizes, shapes and/or textures to generate an act of visual communication, to which they can also add typography, lettering and calligraphy, not to mention that through all these we write words, ideas, and even entire worlds.

With typography, we can write words that we can read and "understand" (provided they are written in a language that we speak and that we know their meaning). These words have, in addition, one more reading by the

"shape" that they "represent". It is as if typography had its own character, and thanks to it could give more information about the intention of the word that is written with it.

When graphic designers, for example, design a poster for classical music, which is addressed to a specific sector of the population, they "automatically" will fetch a typography that includes elements taken from this musical field. Not all kind of typographies will work correctly with the message.

The location of the visual product, in a place (out; street), layout (in; page) and the delivering moment (time) will also have an influence on the "global" signification of this product. Thus, the communicative intentions will also have in mind all of these aspects to conclude the communicational process of the visual product.

The context surrounding the typography is as relevant as the message and the typography itself. Even the "pictures", if we should add some, the colours that we are going to use, the size, in short, all the visual impacts that the designer will want to use. All that can change and generate the meaning of the communicative intentionality. All of these factors together will represent the whole concept that we want to communicate. It is an action, an event which should be planned.

There is a representation's paradigm that sometimes mutates with the trends. Consider, for example, the typographies that change over time –they are modified or some new ones are created– and we can decide to use one or another to represent an idea from the past, the present or the future. This does also fall within the visual code that we use for visual communication.

We can also consider that there is a "standard code" with shapes, sizes and colours, depending on the use that we want for this communicative act. The sign spacing in an airport, for instance. The size, colour and typography that we choose to combine will help or not to be correctly read, which includes whether the message is successfully received by the users of this

specific environment. Other aspects that may be included are the conception of the environment, how the people are going to walk around, or the time that they need to read it, among other things.

On account of this, it can be stated that both typography and the people who use it to represent ideas or concepts work joining the signification of the words, the visual “coherence”, shapes, colours and other elements, with the aim of communicating an idea that, in the end, will be read through someone else’s eyes.

- How could we do a quantum *graphic design*?
- Is not it about time to start communicating ideas through other conceptions of the world, e.g. with decoherence?
- Could we use colours and light in another way in order to be communicative?
- Last but not least, what could happen if we modified the point of view (vision) of the matter (quantum perspective) that graphic designers use for the visual communication?

The observer can also have a significant role, which we could apply conceptually if we try to consider them as a possible changer of the signification. Maybe then we could bring more quantum theories to the present paradigm and start modifying the vision by expanding the significance of reality. With quantum, we might even be more communicative.

Graphic design, in consequence, would have more possible applications.

“[...] “the visual” is something that happens all in one place, in one image, and at one time.” (Elkins, James 2017:24).

We should also improve language, as long as we want to understand better the things that we are seeing and writing with/through our eyes.

[...] la comunicació permetria integrar els milers de pistes i de fragments valuosos que es trobaven dispersos en tants llibres i materials.

[...] una bona comprensió teòrica del que és el llenguatge pot oferir a la gent [...] una millor i major capacitat per inventar i/o (re)generar un sentit en les seues vides. (Navarro Lluch, Josep-Lluís 2016:18). [Annex-xxi]

Graphic communication means generating products that communicate ideas. These ideas often come from the mind and imagination of some people who are going to need a graphic designer to turn their ideas into real products.

The reason for using J.LL.Navarro as a linguistic reference is that he has some useful theories, from which it can be helpful to translate and to apply some of his concepts, because vision is also connected to language.

“En casos de necesidad había construido realísimos jardines con la simple yuxtaposición de nombres y colores, cuya aceptabilidad verificaba más tarde, y éste había sido uno de sus modos de conocer.” (Del Guidice, Daniel 1987:31). [Annex-xxii]

If we learnt more about the language, we could also learn more about everything. It is like a tool that can help us to improve the research of our proposal –in general terms and for everyone. Thus, if we want to expand the applications of visual communication we should also learn about language. [32]

Reading and speaking (dialoguing) can modify the reality that I want to work on. They could give more tools to “act” through the systems that we use for communicating.

Graphic design could be extended by other disciplines, expanding the idea and the meaning of visual communication. Besides, this is precisely the aim of this whole project: to seek multiple theoretical visual (or “not so” visual) interpretations, so to change and improve what visual communication is, as well as all the elements that could affect or be part of it.

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[32] (Navarro Lluch, Josep-Lluís 2016:17).



When we connect “things”, we expand the significations and purposes. Graphic design seems to me a currently “limited” concept, which should be called different; for instance, visual communication, visual design, communicative designers, or something like that. Perhaps, if we change the global meaning, opening it, we will also have a wider access to other disciplines.

This project, in fact, might not give a definite answer. This notwithstanding, and as it has repeatedly been stated since its beginning, everything is in change and can be modified. Thus, this dissertation has the objective of expounding possibilities and questions in order to create a whole new communicative structure.

Language is an influence to visualisation because we can “translate” images to/with words. We can talk about pictures and about the things that we “can or not” see.

It could also represent the inner vision that we have of ourselves. When we speak, we are doing something, which means that we are acting (action). When we act, we are also doing something, to ourselves and others, so it might be that, when we talk about images, we improve ourselves as well as the image that we have of ourselves.

“[...]una bona introducció teòrica al llenguatge i a les llengües pot ajudar-nos molt a fer-nos plenament conscients i responsables de les nostres vides, a dissenyar-les millor[...]” (Navarro Lluch, Josep-Lluís 2016:21). [Annex-xxiii]  
 Much of the information contained in this project is about visualisation, but this knowledge –theories included– came to me in the form of readings (language and the act of reading).

So, which is the meaning of the word “theory”?  
 - The word “theory” was taken from Greek and means contemplation, spectacle or mental conception, and also came from THEOROS (spectator). Another root is THEA (sight), which in turn shares its roots with THEATRE

(see). So, “theory” connects to sight, which can make us spectators through contemplation. “Theory” can be a mental conception about the things that we can see. However, there is no theory that can explain the reality as it is. [33] Vision, as a sense, makes us spectators.

Take the combination between “hand-eye”, for example; we can be in contact with the reality, and we can apply theory to the reality through the experimentation. Experience does also give knowledge. For this reason, there should always be some experimentation, and this is why this research project puts knowledge to practical use by means of developing an experiment. This was a decision taken in the process of writing the project, as the first intention was only to expand the ideas with a theoretical research, but in the end, it became clear that it was necessary to make it practical.

The same version of the communication system is taught at different levels of education, from Primary school to University. This system is static and has a rigid structure. It should be relevant to develop a dynamic system that could interpret all the vision aspects. Besides, of course, it should involve language, as an adaptable and mutable system.  
 - Could this *new system* act like a living element?

We can imagine something that could be disrupted/affected when its position is modified, e.g., time or context, like an adaptable element. Perhaps it can be generated with artificial intelligence, or we can take as a reference a living element, such as a plant.

However, we are currently working in a system which considers some specific items, e.g., the transmitter, which is a person who can think and feel. The system takes for granted that there is always a destination, which can be another person, who will receive the “information” as an active element of the process. This receiver is going to interpret, through their knowledge

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[33] (Navarro Lluch, Josep-Lluís 2016:55/56).

and experiences, the information that someone or something has transmitted. Receivers can also be plural (more than one person), abstract, imaginary, even ourselves. [34]

Every communicative act always takes place in a specific place and time; the four-dimensional structure, mentioned in the “looking for images” section, can give a particular trait to define the social context where this happens. Besides, that could also be interesting to talk and understand, questioning which is the difference between the use and the communicational sphere. [35] Bruno Munari (1907-1998) described two types of visual communication: casual and intentional. The first one can be interpreted by who is receiving the information/message, but with the intentional one, we should find a particular significance. [36]

It is relevant to introduce alternative connections to the visual language with the intention of generating an alternative “visual reality”. We can produce them intentionally; then we should work on the meaning we want to transmit, in case we use it to expose something; however, what happens if we intentionally want to transmit nothing? Would the communication then be *absurd*? Would it be random?

- To which extent is it possible to compare this with the description that R. Feynman used to explain nature?
- Could we have an absurd communicational intention, just to analyse the potential consequences?

“[...] los lenguajes, y los tipos de reacción que implican, no son meros instrumentos para describir eventos [...], sino que también son conformadores de eventos.” (Feyerabend, Paul 1986:214). [Annex-xxiv]

We all can use of the language to act in the world and to create action. This action, in turn, can also be influenced by the visual communication, which

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[34] (Navarro Lluch, Josep-Lluís 2016:237).

[35] (Navarro Lluch, Josep-Lluís 2016:266/271).

[36] (Munari, Bruno 1985:63).

can be possible via images and also via the “image” that the typography gives.

## THE APPEARANCE OF COMMUNICATION:

Error i engany són constitutius de tot allò humà i social. L'engany és el causatiu de l'error, és "fer error"; i els dos tipus bàsics d'engany ( el secret i la mentida) es corresponen simètricament amb els dos tipus bàsics d'error (la ceguesa i la il·lusió). (Navarro Lluch, Josep-Lluís 2016:66). [Annex-xxv]

- Is blindness an error of understanding?

If deception is the kind of mistake that makes us miss,

- How can we communicate something if we are *blind*?

It can be really gripping to take lies into consideration. It can make us see, observe differently, up to the point of considering that lies can cause to see illusions and secrets can hide us the truth, as J. Ll. Navarro considers, and he also exposes that the word "lie" comes from the root "mind", taking into account that it motivates the relationship between words and world. [37]

To continue with the meaning of language communication, and the uses that it can have, it would be relevant to bear in mind this kind of questions we can use to deal with the lies, doubts, curiosities.

In relation to that, it is significant to take into account that we must dispel pseudo-questions and detect crypt-questions:

- J. Ll. Navarro exposes that the first one is where we can find the doubt and critique, which select and discriminate, dismissing what is apparent but false, and with the second kind of question we can deal with curiosity and suspicion, which look into and discover, showing those things that are hidden. Finally, and through a diagram, J.Ll. Navarro explains a possible connection between "appear" and "to be", which represents obviousness, truth and the right choice. This structure can be explained in the following

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[37] (Navarro Lluch, Josep-Lluís 2016:74).

way: "not to be" can "appear", and vice versa, "appear" can "be", and vice versa, and "to be" cannot "appear" an vice versa. [38] It can also be related to the invisible perspective previously mentioned. Language could also have this kind of existence; perhaps this is the reason why we cannot see everything.

- If something that "appears" can be or cannot be and if something that *is* can appear or not appear, what about both options at the same time?

- If something *is not*, it means that it can *appear*; however, if something *is*, can it *appear*?

What if something "is not" and we make it appear, then it will "be", and maybe finally it will disappear. However, if something can "be", then it can or not "appear".

This is a helpful structure to "play" and to discover, indeed.

There is one common truth or reality that we build through a convention/ paradigm, which can also be described as a human convention. This accepted truth brings together the conceptions that we have about the world. Through this, we can see everything connected, and it also shows us the/a way of being in the world. [39] Therefore, could we say that the way how we "use" the paradigm is where we can find new conceptions of the world? If we accept that we are living in a communicative system, what is system and what is communication?

The world is made of connections, and there can be overlaps, interpretations. In the world, we can act through a system. It is "something" with a structure that can be changed by new theories.

Every atom (understood as individual, person) cannot give an absolute reason or theory, but it helps to argue. And in the connection between "theories" is where we can build this common life. It gives support to the community and can also be helpful.

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[38] (Navarro Lluch, Josep-Lluís 2016:67-70).

[39] (Navarro Lluch, Josep-Lluís 2016:76).

- If we cannot know the *truth* of everything, are we living in falsehood or/and darkness or/and invisibility?

Another relevant fact could be to learn the word communication's meaning and how we can use it to communicate. The word communication comes from the Latin COOMUNICATIONEM, which means participation, exchange; which, in turn, comes from the verb COMMUNICARE: receive, participate, put in common; which, in the end, comes from COMMUNIS (public, common, ordinary, share...).

COM- (prefix) means together, community...

MUNIS (noun) means obligation, duty, task, trade, function... [40]

Communication is an action of exchange where we can receive and participate publicly in community as a task, function. The definition of the word communication helps us to take account of all the opportunities that it has concerning its definition and origin.

When we use the internet we are using a tool where we, more often than not, cannot see, listen, the people we are "talking" to and, sometimes, we are not communicating with a person. We may even ask a program, which answers may sometimes make no sense to us.

- Is the *current* use of *communication* making the communication difficult?

- If "people" use the word communication not to be communicative, should we use another type of word to describe another kind of *communication*?

This "new word" could have the intention to say that we are not communicative, as it means, or to represent that we are not communicating at all. To keep going with this arguments, it could be significant to totally explain which kind of communication we are going to use.

Next, there is the analysis of a documentary, from which all of the relevant ideas have been extracted, ideas which are determining to bear in mind because they could be helpful and have an inspirational contribution to the project.

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[40] (Navarro Lluch, Josep-Lluís 2016:83-87).

Here you can find the explanation of some of the conversations extracted from the interviews in the documentary: [41]

- There is a "current" concept, or that is currently used by a lot of people, that is called "fake news", and which is considered a "new way" to lie. It is altering the concept of reality/truth, and people that use that term justify themselves with what they consider "alternative facts".

Individuals who use alternative facts find that not everyone sees in the same way, considering some things more relevant than others, from the same situation, with the aim of justifying their own conception of reality. Politicians and journalists use this term much, justifying with this their personal conception of a concrete fact.

For example:

- There is a conversation. The "fact" is that: it is a conversation, and the things we say are opinions. The fact has no alternative and could be compare with experimentation. Thus, whoever tries to justify these alternative facts is seeking to defend their lie.

- Are we actually trying to explain our particular reality, by considering these alternative facts as our "true" reality?

José Antonio Marina (1939-) is a philosopher who defends the idea that society is devaluing the importance of the facts. It is as if the facts could not be defined. He said that if everyone defends their own facts, then the truth is going to lie only in the things that in "my world" are true.

This could be one more way to understand the concept of "alternative facts":

Ninguna teoría concuerda con todos los hechos de su dominio, [...] Los hechos están constituidos por ideologías más antiguas, y el choque entre hechos y teorías puede ser prueba del progreso. Semejante choque, además, constituye un primer paso en el intento de descubrir principios implícitos en nociones observacionales muy comunes y familiares. (Feyerebend, Paul 1986:38). [Annex-xxvi]

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[41] (Salvat, Joan, documentary, 23-05-2017).

If we add to this discussion some methodological arguments, which in this case, Feyerabend exposed, we will observe that perhaps it could be a good perspective to understand a particular situation. Obviously, in the case of using that for personal benefits or interests, it will be against of the utility that it can have in research. These could be only tools, or arguments, to expand ideas, not to introduce others' ideas to others.

As Feyerabend said, there are two kinds of disagreements between theories and facts: these are numerical and discrepancy disagreements.

The numerical ones are described as familiars, in the way that a theory can have a determinate numerical prediction, and the real value that we obtain differs from the prediction over the margin of error expected.

The other one, discrepancy, is the qualitative failure; it is less familiar but has more attention. In this case, the theory is inconsistent not because the fact could be complicated to discover, but because facts are easy to consider by everyone. [42]

Post-truth is the other term that this documentary exposes. It is an euphemism of the lie. The method that the post-truth uses is to assume that the fact should be not limited; the users of that method turn it into an emotional fact (not rational). J. A. Marina defended the idea that this situation is destroying the confidence in science, for example, it is the case of the climate change. Some people think that it is a strategy of the economy and that it is an invention; then, what is happening, is that they are concealing the references. So, it is restricting the way of questioning which, in consequence, will restrict the way of answering.

Nowadays, we are bombed, via the internet, with a lot of "fake" information. The information that we have or see on the network, on our mobile or laptop, is related to the "information" that we share (algorithms). Thus, the direct consequences are that, in the end, we only see the things that we are "interested" in, which, in consequence, reinforces our opinion. We are

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[42] (Feyerabend, Paul 1986:38/41).

living in a bubble, and also eliminating our critique capacity, as J. A. Marina says. Walter Quattrociocchi (researcher of social dynamics and information) explains that with this example:

- It is more than a reference bubble; it is a resonance camera. Because it is a place where the information resounds and gives a narrative support to the conversations.

J. A. Marina considers networks a parallel reality. There are some people that find what happens in the network more important than what is in the "reality". And it is reducing the social intelligence.

Fake news is mostly related to economy and ideology. Many economic interests depend on how many clicks something has, which also means that the economic agents do create fake news to get more money. The less believable is the piece of news, the greater attention it will get, as Ferran Lalueza (teacher of communication and social media) defends.

Recently journalists have been developing the "fact checking". It is a tool that supposedly "helps" them to verify the information.

Finally, in the documentary we can listen to these reflections:

- People are responsible for the things that they share, even if they are not the authors. And, how could society defend that it has its own voice?

There are so many worlds with alternative views. It is possible to take into consideration the importance that you can have when deciding how to use the information that "is interesting", and "where" you are going to share it. This will also describe how "your voice" is.

There is a side where we have no access to that modifies our truth, our reality. Sometimes it happens outside of us, it can be not a "personal" decision, but it influences the appearance of the world.

All of these concepts are also associated to the arguments of Boris Groys (1947-). "Google is the first known philosophical machine that regulates our dialogue with the world[...]" (Groys, Boris 2012:5). Then, the network

is inside of our conception of the world, and it has an active process which also influences the perception of reality modifying the subject, our self and the "truth" about it.

Through words and images, we build a part of our reality in the net, which can be entirely different in the physical world. Google, for example, modifies language and perception and, as a consequence, it limits the meanings of the words. Are this kind of companies building a limited world?

In this way, Groys wrote: "In such a limit situation all words become identical in their meanings—They collapse into one floating signifier with zero meaning." (Groys, Boris 2012:10).

Accordingly, Google manipulates language and modifies it, and the reason is questionable. It could be possible to consider that it is more influenced by economy and politics than individualities, because the internet is also used as a tool that sways our thoughts. This tool is so effective to "control" or/and "motivate" the society in one direction (the one of their interest) or to maintain a conversation that benefits someone/"something". It can be used by people/companies that have the necessary resources to act through the net, and the finality can be to expand or keep their benefits alive. On the other hand, it is possible to search something in Google with just a word, considering that as a personal intention, but there is a connection that makes the algorithm "think" that something is related to the topic that you are searching and also to the past searches that you did. Then, the search is being altered by the company (Google) and the same with the access to the possibilities. It makes us blind to alternatives that it apparently has.

"El llenguatge és l'instrument o vehicle del pensament, de la consciència, de la memòria, de l'accés al saber, al coneixement i fins i tot a allò que està més enllà d'ell mateix i que ultrapassa allò verbalitzable[...]" (Navarro Lluç, Josep-Lluís 2016:83-98). [Annex-xxvii]. I related these arguments of J.Ll. Navarro to the Qualia concept that we can amplify and connect also with the verbal argumentation.

- Can we use language to have access to the things that we cannot describe with words?

[...] Roger Penrose y [...]Stuart Hameroff[...] .Sugirieron que la conciencia humana resulta de superposiciones de los estados cuánticos de las fibras de las proteínas en las neuronas denominadas microtúbulos. Suponen que la función de onda se colapsa en esos estados, lo que permitiría al cerebro realizar una especie de computación cuántica que da respuestas a cuestiones que no serían probables a partir de las reglas formales de la lógica. (Clegg, Brian, 2015:150). [Annex-xxviii]

It is easy to think that images, mind, word, communication are an interconnected process, which influences our vision and the way how we understand it, but:

- What could happen if we discovered that our thoughts work in a way that we cannot logically understand?

Of course, we can talk about an image, and we can also write about it, so, it is coherent to think that language, currently, is an important tool to understand everything.

However, what happens with the no-words and silence concept?

- Is that a duality with the invisibility concept?

If we do not have words to explain something, or we have no words at all, is it because we neither have got an image?

- Is silence a lie?

- Does it also mean that we do not want to show the image that represents that silence?

If it is impossible to reach an agreement, because as we know, we cannot communicate and see everything that we think:

- How can we argue about that existence in our shared world?

- Should we only use it to try to find this image, which may not be true/ logic?

It could be relevant to consider that this project is trying to search invisible images and a new way to communicate them. Often, society does not work

with all the options that there actually are, and this kind of images can provide communicative systems, which could expand the possibilities.

We have all the options that we could imagine, but the rigid structure that “sometimes” exists is making the possibilities difficult.

What is more, society has and should have different perspectives than mine, and they will defend other theories. For me, both components should be open to dialogue. It seems that it is not easy and that we should “talk” for a while. Even, we can also think that the educational structure is not facilitating/has not facilitated that.

In this project, there is also the argumentation which gives support to the opportunity of the alternative. It means also giving ideas for a new paradigm and questions which can be answered with new imagined ideas about other kinds of reality. The intention is to build the atmosphere where we can find the opportunity of transformation. So, this project should take into account where the “limit” of the words is and where the “limit” of vision is.

- Does the limit define the next step to take?
- Is it coherent to think that there is a limit?

No cal aferrar-se a les paraules, deia, perquè ens confondrem: ni les paraules ni les coses a què apunten tenen existència pròpia, son buides en essència. [...]; per un costat tot és llenguatge, però alhora sols el silenci pot expressar l'última realitat. (Navarro Lluch, Josep-Lluís 2016:125). [Annex-xxix]

- Is the silence unlimited? “Perhaps we should let the emptiness speak for itself.” (Barad, Karen 2012:4).

The last reality that we will see will come from emptiness, invisibility and silence, but this last one will also be the first step to the next path.

Reality comes from the Latin “res”; which means that being real is being “thing”. “Res” comes from the verb “reri”, which means “to think”. For this reason, “res” means, “thing about which one thinks”. [43]

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[43] (Navarro Lluch, Josep-Lluís 2016:221).

“Verba et Res, Res et Verba.” (Navarro Lluch, Josep-Lluís 2016:303).

(Words and things, things and words), it can be used as a structure which represents a kind of relationship with the world, where we are also involved. Without people, this structure might never exist. Around these two concepts, we can generate a communicational structure.



### TALKING ABOUT IMAGES:

- If someone talks to us about an image that we have in common, why could we disagree? These are verbal arguments. However, what is this verbal: voice, sound?
- Can we communicate images via sound?

There is the term “affatus”. Ramon Llull (1232-1315 or 1316) used this term, which helped him to explain and expand the senses. With this word, he explained how the words work. “[...] és aquella potència amb la qual un animal manifesta a un altre animal la seua concepció.” (Navarro Lluch, Josep-Lluís 2016:136). [Annex-xxx] Its finality is to manifest the conception that is built inside of the beings (e.g. people) with the rationality and imagination. The animals without rationality, will “only” use the imagination. It is possible for them to communicate this conception through their voice, with the purpose to manifest that to another animal, because this last one is looking for the conception of the animal that is trying to be communicative. [44] Therefore, we could say that we communicate our conceptions because we want to know the conceptions of the others.

In the case of R. Llull and the communicational system that he explained, the voice/sound is one of the central points in the linguistic/oral communication, but we can adopt this conception and use it with the visual sense as well.

- The light as the transmitter, as an extension of our visual sense (?). Could light be kind of our *sixth sense*?

Sound comes out through the voice, and vision comes out through the things that we can generate with the hand, for example, objects, thanks to the connection between hand and eyes, as we have read in the “seeing” part, with Emiliano Bruner’s theories.

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[44] (Navarro Lluch, Josep-Lluís 2016:136).

Both “systems” have the mind in common.

La nostra ment no està limitada al cervell, sinó que emet prolongacions que entren en contacte amb el que ens envolta. Per això es parla de “ment estesa”: allò que percebem no està només en el nostre cap, sinó també on sembla estar. Subjecte i objecte no estan separats, sinó connectats, i l’observador forma part de l’experiment. (Navarro Lluch, Josep-Lluís 2016:141). [Annex-xxxii]

It is the same as what is mentioned in the quantum section about the presences’ influences, where it is said that we cannot separate world and us, we create this being together. Accordingly, mind, voice, light and objects are all connected.

As we can see, there is a similarity between visual, quantum, communication and language. We could say that it is because everything is connected, and it can make sense because we build our life by making connections. “L’últim objectiu pot ser aleshores que tot el món intern [...] siga exposat com a visible en el món exterior.” (Navarro Lluch, Josep-Lluís 2016:143). [Annex-xxxiii]. If we can listen to the silence -which can be more expressive than a dialogue- the same can happen with the gestures, movements, or intonation.

- Can we also see and feel the invisibility and the void?
- Lichtenberg had a reflection related to these dualities, which explains that we should speak if we want to be visible. [45]
- Should we try to talk with the invisibility in the *invisibility’s language*?
- Then, the way how we speak is the way how we become visible. The vision that we can show of ourselves comes from the way how we can speak.

We generate the world with our thoughts, language, images, sensibility, orders, and experiences, amongst others; with all of them, even with those

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[45] (Navarro Lluch, Josep-Lluís 2016:162-163).



we can or not want to talk about/communicate.

“Usar el llenguatge és una realització de la mateixa classe que la nostra integració de pistes visuals per a percebre una cara (o qualsevol altra imatge) [...]” (Navarro Lluch, Josep-Lluís 2016:231). [Annex-xxxiii]

#### INVISIBLE KNOWLEDGE:

Knowledge is something that I would say “it is supposed to be personal”, in the sense that we process the information subjectively, and which also includes our participation and implication. We have to act to learn; we have to watch (also act) to see.

We “know” more things but we cannot express everything, and the reason of that is because the 80% of the universe is obscure matter, which is invisible to us because it is the absence of light, and because without light we cannot see anything. This obscure matter (invisible matter) is determinant for the visible one. This invisibility also represents the transparency, the transparent action, and, as Heidegger remarked, could be related to the “habitus” (non-reflexive activity). This transparency is also related to the “tacit” concept, which explains that it is more efficient to add competencies (tacit knowledge) in the action than to expose a concrete knowledge.

William Blake exposed the “perception’s door” concept. He defended the metaphorical idea that if we could keep the doors of perception “pure”, people would be able to see everything as it is; infinite! This infinity is currently unattainable, void is the point where everything comes from and somehow it distorts the reality. There is not a specific place for each thing, neither a specific thing for each place. [46] These arguments can be related to the significance that the things we cannot see have for us. They influence our visible world, and they also take part in it.

“Significatorio est revelatio secretorum, cumo signo demonstratorum. De manera que la significació seria el contrari de l’ocultació.” (Navarro Lluch, Josep-Lluís 2016:217). [Annex-xxxiv]

Void is not a literal silence or a non-linguistic, non-visual, or mental void. It is a critique and an overcoming of the conventional reality.

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[46] (Navarro Lluch, Josep-Lluís 2016:192-201).

"Maybe the ongoing questioning of itself is what generates, or rather is, the structure of nothingness." (Barad, Karen 2012:8).

So, should we start to represent our selves also as invisible and silence beings?

Void is also reflexive because it can be described for itself and is a way to look, to see, to be in the world, even to talk. [47] Void is a successful association to the inner part that we have in "our body\*" because we can define this part of ourselves that we cannot locate, for example, the mind.

Another concept that can be considered as invisible knowledge is all the "future language". If we want to change a paradigm, we should be able to –through our theories– argument with unexplained terms and also use sentences for which there is not a clear rule. "Comprendemos ahora cuán esencial es aprender a hablar en enigma, y qué efecto mas desastroso debe tener la urgencia de la claridad instantánea para nuestra comprensión." (Feyerabend, Paul 1986:250-251). [Annex-xxxv]

Hence, invisible (enigma) in language terms gives us the possibility to expand our ideas and to be closer to a new paradigm's perception.

The horror of the phantasmagorical should not be isolated, it should be considered as something unique, and we should look at it with interest.

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[47] (Navarro Lluch, Josep-Lluís 2016:315).

*our body\*:* related to the personal identity concept, which includes "physical" and non-physical" aspects.

## CONCLUSIONS OF COMMUNICATION:

"[...], aquello de lo que se nos habla, está debajo de lo que se nos hace ver." (Deleuze, Gilles 1987:5). [Annex-xxxvi]

Sometimes we decide that the elements that we can see are more important than the things we listen to. The only reason for that could be the visual condition with which we explore reality. We have to think that it is only a piece and that we cannot only bear images in mind to base our understanding. We cannot perceive the mind, but we use it in reality. It is not necessary to locate it.

Understanding and experimenting with images are going to have an amplifier effect to the knowledge, which will also expand the language because we will know more about reality.

It is necessary to explain what we see with all of the effects that this visual perception has inside and outside of "ourselves".

Is possible to imagine this situation using the example of reading a book. Normally, when we read a book we try to comprehend everything that is written, and when we find a word that we do not understand we look it up in a dictionary or elsewhere. The same could happen with images; when we do not understand something that we see, we start searching it on words that we should have previously understood. And that is why we should learn language to see "better".

- Could we talk with the light through the light?
- Which kind of answer would we receive?

"De una de éstas se alzó hacia el cielo una bengala de salvamento; como si la luz se pudiera responder con la luz." (Del Guidice, Daniel 1987:157). [Annex-xxxvii]

- Can we add value to *alternative facts* to consider them possible?

If we contemplate that through quantum, that every possibility (co-)exists, but that it “can” collapse when we observe:

- How can we know that everything collapses exactly in the same way for all of the people who is present in a particular situation, for example?
- Could also the fact, or the perception of that fact, be modified by each receiver?

We might be confused about a fact because of our opinion of that, as well as because of the visual perspective that we had in a situation.

- Is it difficult to believe something to be 100% true?

Si consigues leer las primeras palabras, el cerebro descifrará las otras:

Cierto día...

C13R7O D14 D3 VER4N0 3574B4 3N L4 PL4Y4 O853RV4NDO...

Vilayanur S.Ramachandran y Diane Rogers-Ramachandran, investigadores en el Centro para el Cerebro y la Cognición de la Universidad de San Diego, afirmaban que cuando un objeto queda en parte oculto, el cerebro lo reconstruye con gran maña y crea un todo visual.

(Fernandez-Vidal, Sonia 2013:78-64). [\[Annex-xxxviii\]](#)

On the other hand, and to add one more perspective, I would like to explain the value that it could have to review the human conception and its faculties, to re-build a new way to express our visual language. With these new conceptions of ourselves, we will have new experiences. [\[48\]](#)

Communication is complex, not difficult if we learn and create a system that gives us answers. It is in the action, e.g., experimentation, where we can try to communicate.

This part of the project has exposed so many points of view and theories, connecting, to some extent alternative possibilities found and learn whilst doing this research.

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[\[48\]](#) (Feyerabend, Paul 1986:139).

Sometimes, I may have written “impossibilities”, but coherence often cannot give the opportunity of changing. All with the intention of explaining what invisibility seems to me, based on research.

- How would it be, reading the invisibility?
- When we look at one image, are we reading it?
- Is the language going to change into a different visual code?

Finally, and as a little summary of the position that I have about graphic design, it can be useful to add these final observations:

- As it is happening in graphic design, by trying to keep looking to the same direction we are omitting the different options that the “visual designer as observer” could bring.

The visual communication that in this project is exposed could open new alternatives that could be applied to different environments, helping and improving other knowledge branches. All this can also have social consequences.

We should use the argumentation through the language, the power of conversation, to change the visual paradigm.

Sometimes, in design conferences, people argue about solving problems through design processes and methodologies, but what is significant to know is that one problem can always be solved and everyone can have their own personal solution, which can be discussed to check whether if it is better than other kinds of solutions or not. All this, in the end, can be even absurd.

It is even more determining to consider that designers use design to improve and search, creating new social perspectives and connecting different specialities. This change can also be used to analyse visual consequences on the world, focusing on the interpretations.

## **Experiment**

CONTEXT:

“Els investigadors hem d'estar atents: les variables són arreu i cabdals per al resultat de l'experiment.” (Sales, Martí 2015:77). [Annex-xxxix]

The experiment here presented is related to the theoretical part. It mixes communicational structures and quantum, inside of this communicational structures we will find visual and sound ones.

An intention that it has is to search new ways of looking at ourselves, through an “in-direct” communicative structure that was built/connected. Everything is not made by me: some of the artefacts that I have used come from technological products a vibrational speaker, amplifier, spotlight and DMX, these both last ones with a sound receptor. DMX is used for programming the light to be sensible to the sound.

However, it is possible to describe this experiment as an in-direct communicational system, because it comes from the sound that the heart generates with the blood pumping, and also because it comes and is located inside of our body (in); direct, because it is directly capturing this sound and emitting it by a vibrational speaker (out).

Perhaps it could be better to call that in-direct-out system or a surrounding system.

We are not all the time hearing this sound and neither seeing our hearts.

We might consider that it is an invisible action that we have inside, and it is invisible because we cannot see it with the naked eye in our daily life. Of course, some doctors that operate the heart to someone, e.g., transplanting it, could see a beating heart, but previously to that knowledge, we were blind to it. We had no access to see it directly and we cannot observe it, and the reason is obvious.

The action that generates the sound of the heart is caused by the valve movement that the heart makes. With this movement, it opens and closes the valves (in a basic description).

This sound and movement, which comes from our body, is not an action

that we can directly control, but our actions can indeed alter it.

On the other way, the heart does also give information to us, related, for example, to our fitness, our sense or our mind.

When I talk about alterations, it is with the intention to refer, for example, to the rhythm of the heart, which can be modified with the feelings, emotions, if we have physical problems, or when we do exercise, for instance. We are not all the time worrying about it in our daily life, but when we are tired, or emotionally affected, we can feel how our heart reacts; anxiety, for example, can also alter the heart rhythm. Thus, in some way, we can alter this rhythm with our mind. Nonetheless, our body is connected with our inner life, and this can “sometimes” be hidden to the social environment.

In the first attempts to these tests, when I was trying this experiment with myself, there were often people around, and when it was connected some personal issues arose:

- I am, sometimes, a shy person, and I had experienced this sensation during the firsts tests. My heart rate is always accelerated, which can be interpreted by others as that I am a nervous person, or maybe people can understand that I am shy, and that, for this reason, the heart has this rhythm. Some of the people that were around mentioned it as a surprise for them, empathising with me.

The reason for explaining this was more because it can be considered as showing something to the others that is considered intimate, and that also is something that people do not usually do. In some way, it is showing something that is “intimate”, from inside, and that then comes to be public. Normally, our heartbeat is only listened to by doctors, which could also be a “social mistake”.

In some poetical way, it could be nice to consider that the heard sound is the composition, is the rhythm of our body and everyone has their own melody/song.

We can also imagine that, if we could register, all of the time, during our entire life, the sound of the rhythm of the heart, the result might represent

the “story”, the narrative sound of “our” life. For sure, the physical impacts and emotions would be represented on it.

If we were recording our heart and the images, we would have another piece of information about our life, perhaps it would be information that we, sometimes, do not want to be shown publicly. It represents an “invisible” part we are aware of. So, in this experiment, there is also a narrative sound which represents a part of our life.

All along the development of the experiment we can recognise different “time moments”. The heart, somehow, with its rhythm, represents the time as well, as in a song composition.

During the experiment three elements can be taken into consideration: the life time, rhythm of oneself, the “time” of the heart and the time of the “context”. All of these times can be connected and they also may affect each other.

- Are they in a coordinated or/and harmonious communicative system?

The time spent building the experiment, as well as the time of assembling the installation, can modify the perception of the experiment, to me and to others (even to the observers), which can alter the idea about the experiment. Accordingly, time is in the context and it shows us information about the objects that are around; the final use of these objects does alter the time and the situation’s rhythm as well.

As a quick explanation of the experiment (an extended explanation about it can be found in the next section, called “development”), the following should be exposed:

- An electronic stethoscope, which is going to capture the sound from the heart, will be connected to an amplifier; the amplifier, in turn, will be connected to a vibrational speaker. Then, caused by the vibration and the sound of the speaker, a light will switch on and off, to the rhythm of the heart (belonging the person connected to the gadget).

The DMX has a sound receptor, which will also help to generate a reflection (the person connected to the stethoscope will see themselves reflected), in

a transparent methacrylate (which acts in this case similarly to a glass); this effect -the reflection in a transparent material- is a quantum process called “beam divisor”.

Now, it is relevant to think over the impact that the image from the experiment can have, in relation to the time. The light and the image can also alter the time and the rhythm of the “process”.

Another aspect of the time spent observing is the limits of the memory.

[...] memory [...], is a special problem in those visual arts that intersect language: performance, some video, and some film. In pictures, everything is different: time is suspended, and we can refer to everything. (Elkins, James 2017:15/17).

Images are going to be shown for a few seconds or for the time people decide to be connected. These images of oneself could be remembered for a long time, or not. It will depend on the feelings and the kind of experience that every person individually had.

It is of significance to realise that the image that will be seen is not permanent; it is a consequence of a conversation. We do not have permanent conversations and we do not always record them.

- If it is not permanent, could it *disappear*?

It might not disappear from the memory.

In relation to the quotation from above, of James Elkins, when he said that the time is suspended in a picture, it is reasonable to agree; it might be add, however, that with the mind we can imagine the whole action, and not only a suspended version of it, because what this kind of picture has is enough to give us the inputs so to complete this action.

Moreover, we can imagine the previous time and the future time of this action, which obviously is in the past. With only the view of a static scene in a picture, we can reproduce the complete action sequence. We can even

venture which the future of the image's action could be, notwithstanding that even this future would be, in fact, enclosed in the past. Then, when we see an image, are we really staring a "static" image? The answer might be positive. However, if we, while observing the picture, imagine an action (considering that we are developing another action), then:

- Could we have two *dimensional* points of view at the same time?
- Is it our knowledge what prevents us of thinking in that way?

"La vista aísla mientras que el sonido incluye; la vista es direccional mientras el sonido es omnidireccional. El sentido de la vista implica exterioridad, pero el sonido crea una sensación de interioridad." (Pallasmaa, Juhani, 2006:50). From the moment we mix sound and sight in this experiment, we are also mixing the interior with the exterior, so then the frontier between "inside" and "outside" is presented/represented partially diffused or dissolved.

El ojo no encuentra el altímetro donde debiera, lo busca, lo ve, quiero decir que ve el instrumento, mientras que de ordinario toma nota automáticamente sólo de números y guías; los pies y las manos sienten la consistencia de los mandos, notan la materia de que están hechos los mandos que habitualmente manejan sin sentirlos.

(Del Guidice, Daniel 1987:18). [Annex-xI]

One of the experiment's principal aims is to look for feelings, because it is appealing that the people who are going to be connected to the experiment could feel "something" when being in contact with the gadget as well as with the rest of devices.

Every "machine" gives information, their composition and their function do also talk, and they finally generate an image that can be explained.

"Les relacions depenen dels límits de les converses. [...] I no hi ha cap dubte que els estats d'ànim, constitutius de l'existència humana, predisposen per a l'acció, perquè són com les lents a través de les quals enfoquem el món." (Navarro Lluch, Josep-Lluís 2016:20). [Annex-xLI]

In this act of communication everyone can decide whether to start the conversation. Then, the heart activates the rest of the process; further more, it has the "responsibility" (not all) of what/how we can see ourselves.

The hand (action; brain and hand) will hold a piece of the stethoscope to keep the experiment connected, and the mind will "decide" whatever it wants to make it work or not. They will also decide how it is going to work, because it has a specific position in the body which is better to hear the heart. So, mind and hand will have to work together to find this right position.

I do not see this experiment as something that is going to finish with the presentation of this project; in the section "future experimentation" the reader will find some other perspectives that this experiment could have, as well as issues to further develop the research. The conversation will not perish with the project.

Hence, the relationship with the experiment can be a way to improve and amplify its options and applications. It could be the birth of a new relationship with the visual communication, which includes us as human beings, without forgetting that it can change and that it is currently in change.

There are disciplines that can prove useful for the aims of this project, such as post-humanism, which gives different perspectives of how to perceive the body. Besides, our body, as observers, can modify communication's understanding and conception. Further discussion about these concepts can be found in the final conclusion section of the project, but the following ideas are relevant to the current topic:

[...] the represented bodies is no longer a natural inevitability but a contingent production, mediated by technology that has become so entwined with the production of identity that it can no longer meaningfully be separated from the human subject. (Hayles, N. Katherine, 1999: prologue xiii).

Then, the consequences of this transformation will affect the attitude that we are going to have in the world and our situation on it. The environment

will also have a completely different perspective/picture.

We could deem this experiment a communicative circuit that works through the heart sound, but that can also work with voice, music or any vibrations; it can be easily adaptable to other options. It can also be connected to other things, such as objects or other beings (e.g., plants). Nevertheless, it could even be adapted to other dimensions, such as micro dimensions or macro. There are more reflections on it in the future experimentation section.

“Una icona té la classe de ser que pertany a l’experiència passada [...]. Un indici té el ser de l’experiència present. El ser d’un símbol consisteix en el fet real que alguna cosa s’experimentarà si es satisfan certes condicions.”  
(Navarro Lluch, Josep-Lluís 2016:276). [Annex-xlii]

The conditions that are here exposed are intentional and attempt to create a dialogue opportunity. Depending on the conditions, the answer will be one or another, because the question will change.

The body (alive) gives to itself the opportunity to let out a side of our inner-body.

The heart, which represents personal emotional states as well, generates an image of ourselves –in such a way that we cannot represent the same with words–, and this image is introduced into a system under some specific conditions.

“Sovint es confonen teoria i realitat com si la primera fóra un espill o retrat complet de l’autèntica realitat.” (Navarro Lluch, Josep-Lluís 2016:56). [Annex-xliii]

This experiment cannot be considered as a complete portrait of anyone. It is a really small part of “our existence”, but it is a different way to see ourselves; still, both the experience and the learnign obtained by carrying it out can be said to have been absolutely amplifying, for knowledge as well as for its perception.

This experiment has given a chance to discover more possibilities to “play” with the reality, even to uncover aspects of ourselves, our body and our life.

The experiment on its own is able to generate a temporal portrait of ourselves. Of course, nowadays it is quite obvious that people take pictures or videos with their mobile phones, their digital cameras or whatever, but the photographs taken will be an spectator’s representation of the situation, another point of view which could also be engaging to analyse. This type of spectator will also bring to the experiment another kind of conversation: - When we are connected, when we observe the system, when we see a picture or video with the system turned on (or not) at all times it can still be “active” by having a network conversation with other people, which can be miles away from the experiment.

Besides, via the internet and using some mobile phone or tablet applications, it is possible nowadays to record a video and broadcast it live. This would give another dimensional scale to the project without even depending directly on it. The responsibility and choice would come from the subjects surrounding the experiment in a concrete time and place.

The image that will appear in the experiment is considered a quantum process –related, in turn, to the double slit experiment of Thomas Young. This is called “beam divisor” and it can be also linked to the tunnel effect. B. Clegg explains it with an example: [49]  
Imagine a house’s glass window; if we look through it at night in a room with the light on, we will see ourselves’ reflection, but if we go outside of the house, and look to the other side of the window, we will see the room. It happens because a big part of the light that is located inside of the room reflects in the glass (5%approx.), and the rest of the light crosses the glass. Following the Newton’s perspective, who defended that the light was formed by particles, it was impossible to explain that phenomenon. He

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[49] (Clegg, Brian, 2015:78).



thought that it happened because of the irregularities of the surface, but he could not demonstrate it with an experiment. Now we know that it happens because photons have a quantum nature.

It is not possible to say whether one single photon will reflect; we can only know the probability of that, and the quantity of that percentage will depend on the glass thickness.

Beam divisors (glass, in this example) can interweave particles, even a group of them. This process begins when a non-observed photon is sent through a beam divisor. This is considered a “state of superposition”, where we only know the possibilities it has to cross or to be reflected.

So, the image that we will see in the experiment will be generated through this quantum process, which is born from the light and a beam divisor, in this case is, methacrylate.

Everyone knows that during the night we can see ourselves reflected in the window –the same happens during the rest of the day, but is more difficult to observe.

A potential consequence of having acquired this knowledge is that we expand our understanding and that we analyse the reality differently.

So, from now on, when we find ourselves in our room, staring at our window’s reflection in the middle of the night, we might then remember that some invisible phenomena are happening at that precise moment, and create the possibility of the reflection.

“Para ver [...], hace falta mucha voluntad y mucha energía, antes y después, porque lo que se produce para que pueda verse no se ve mientras sucede: se ve primero como intención, se ve después como resultado.”

(Del Guidice, Daniel 1987:52). [Annex-xliv]

It is thinkable that this experiment could make a change, that it finds a new way to communicate and to observe ourselves, without forgetting the spectators, which are also going to be part of this “moment”. It is an intimate relationship that goes constantly from inside to outside. For instance, the

heart’s sound comes from the inside of the body of the person who is connected, so this relationship might as well be considered an indirect dialogue. The users of the experiment will see themselves in different relationship/communication with their body. If we use the experiment for the first time, it is likely that we have never done anything similar with ourselves, and we probably never had this type of conversation with us, neither alone or publicly.

“[...] llenguatge com a instrument del pensament, del saber i de la ciència.” (Navarro Lluch, Josep-Lluís 2016:104). [Annex-xlv] Language gives the opportunity to experiment and also brings access to the argumentation about the “experiment”. In consequence, language could help to “guide” the “next step” in this research process.

In this experiment/conversation we have sound, light, images, body (outer/inner), all that has been previously mentioned in the preceding sections of this dissertation and that has been attempted to put in conversation.

The images have signs and clues that are intertwined and that generate, create a scene, a fact, a world, or whatever we can imagine with this situation.

Agustin García Calvo (1926-2012) built a diagram called “P-O-L-S”.

In this diagram he exposed four main points where we can find the four essential elements of the “world” and that we can use to analyse experimentations:

- 1: Represent the people which talk and understand each other. (*In the experiment, this could be the conversation with oneself*).
- 2: Things they talk about. (*They can talk to themselves, being this an interior and exterior conversation where everyone can have a different communicative moment*).
- 3: The society which results from this linguistic contact between people with the purpose of the things. (*These would be the consequences that the experiment will have - paradigm*).

4: Is the instrument with which we can practice this agreement and through which the society is built. (*The experiment can change/modify the agreement/paradigm through the change of the visual perception*). [50]

This diagram explains how we can make agreements with other people and can be used as an exemplification of possible structured situations during communicational situations).

It can also help find which are the main elements to observe in our actual paradigm.

Through quantum we can imagine a new communicative system, even alternatives which would represent realities. We can also understand the reality with other eyes.

It is interesting to try to represent how the reality could work, as a composition between many things that we can alter and modify through experimental, verbal, visual conversations.

This complexity is the place where to infinite possibilities that we can imagine, either easy or complex.

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[50] (Navarro Lluch, Josep-Lluís 2016:304-305).

#### DEVELOPMENT:

During the Master's degree, the students had the opportunity to present in "Barra de Ferro" –an exhibition room of Eina University– something related to their investigations.

I decided to participate with this (unfinished) experiment and at the same time to collaborate with a classmate. It is decisive to share everything during the process because it can be a tool to expand/improve the investigation.

Then, together with Alonso Peñaherrera, who is developing an interior design project creating haptic spaces through a sound translation, we decided to connect the stethoscope that I had made, to the same laptop where he was recording the sound, to finally use this record in his translation process.

It is nice to think that the stethoscope was also used for another communicational act. Consequently, it can be said that this experiment is with other ones.

We started to share some aspects that were interesting for us both and that our investigations had in common; he wanted to capture the sound from the body and I was attempting to create images through the sound as well. So, finally, I decided to create an electronic stethoscope with the collaboration of "Espai Dinamo", because I had never worked in electronics before. In addition, I needed one more kind of collaboration, a robot programmer. Both were helpful and taught me how to read a circuit diagram and they explained to me which are the components of an electronic diagram and their functions. They even taught me how to solder the components.

We spend so much time together to make it possible. Even the sellers of the shop where I went to buy the components helped me to recognise some mistakes in the diagram.

The reason for including this explanation in this part of the project is because it should not be shameful to admit of the process, generating somehow a work team, and that one may even need to look for the help of

others in order to achieve one's aspirations, objectives. Otherwise it could be impossible, or perhaps we would spend a lot of time trying to obtain on our own all the resources that we need to develop our ideas.

In the first tests, the stethoscope did not work properly, a lot of "noise" could be heard, mixed with the sound of the heart. We managed to lower the noise, but it was still making too many interferences.

So, in the end, I decided to go to an electronic reparation workshop. They helped me a lot during several days. Together we tried different options and finally we decided to use just the voltage of the circuit with other components that were not in the original circuit.

That was revealing, indeed. Because we had spent a lot of time with the circuit and looking for alternatives or solutions, and finally, it came out that it could work with only a resistor and a condenser. Now it really works, and better than ever.

During the exhibition in "Barra de Ferro" I tried to generate images using the reflection in the water, but the vibrancy of the speaker together with its bad quality, made it impossible for the experiment to work.

I was attempting it with a box made of transparent methacrylate with water inside. It did not move much, and the reflection was more on the surfaces of the box than inside the water.

The first idea was to generate the reflected image of oneself in the water with the vibration of the heart sound through the speaker. The water would move and modify the image with its vibration, but in the end it was not possible to achieve.

Afterwards, I tried again, this time with a mirror, then with small glass bottles filled with water. But it did not work either.

The rest of the connections with the stethoscope worked, so people could, at least, listen to their heart sound.

During the exhibition I talked to a lot of people about it, and one friend of mine had an idea concerning the speakers. He told me that there were some vibrational speakers, which I did not know anything about before. He showed it to me as an alternative, and they are finally part of the experiment, though not to alter the water, but the light instead.

Another reason not to use water is because working with the light makes this experiment closer to the theory.

The sound (voice) from the heart will alter the light (visual) and the person will see their reflection thanks to a quantum process.

Using this speaker we have more possibilities to continue experimenting in the future. It transmits sound and vibration, and it is small and easy to install on several kinds of surfaces.

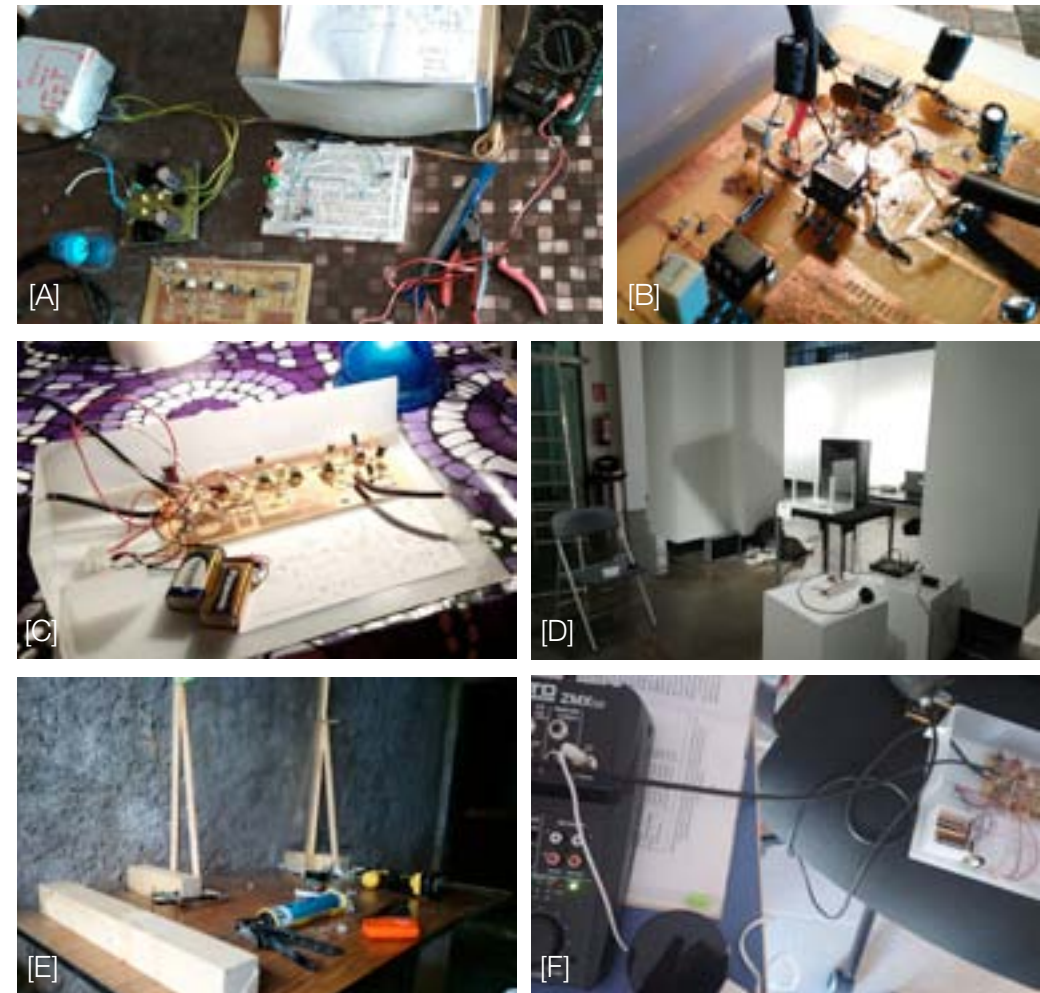
[...] *los movimientos eran sólo el telón de fondo de los pensamientos.* (Del Guidice, Daniel 1987:45). [Annex-xlvi] This gives me the possibility to be closer to expand my ideas and to do more tests with this kind of experiments. The probability is always there, during the experimental process with the mistakes that are influential.

*Sí, quizá lo que más me gusta de las cosas de las que usted se ocupa es que una idea o un modelo nunca son abandonados por completo; quizá porque no son reales, sino probables. Quizá la probabilidad es una gran forma de respeto, cercana a lo que ocurre hasta coincidir con ello, y sin embargo separada.* (Del Guidice, Daniel 1987:115). [Annex-xlvii]

Finally I would like to mention another conversation that I had with another friend, to whom I had the opportunity to explain the experiment. He said to me that I was closely to be a magician, because I was creating a world, a particular atmosphere with this project. This consideration revealed to me a reality that I had ignored. A magician is someone who can create an atmosphere where "everything" is possible, and curiously, magicians work with visual codes/systems.

This conversation was also about the visual aesthetic of the experiment, I wanted to change the heart sound's receptor I had made with a funnel, and to which I added a special gluing foam, which captures air noise, but this foam was also capturing the waves from the heart, so I decided to remove it. However I could not manage to clean all the foam, so thought of using a piece of the medical stethoscope instead of the foam. He exposed to me that this piece had so much visual information, and that it would remind people of medicine aspects if I finally wanted to use it.

The final decision was to continue with the funnel to keep the aspect that represents the reality, which is that it is in the middle of a process/conversation. People are going to see exactly what this project wants to explain and also the people who are going to use the experiment will have a clear idea about the continuity of the experimentation. It is preferable to express everything how it is, as well as to show the entire experiment how it was built.



[A, B, C] (Stethoscope tests).

[E] (Methacrylate "screen").

[D] (Espai Barra de Ferro - Universitat Eina).

[F] (Stethoscope test with amplifier).

### FUTURE EXPERIMENTATION:

In this section, the reader will find some imaginary, or not, possibilities of future applications, or future experiments that could happen as a consequence of this research.

For example, it could be possible to add more inputs/outputs, making it grow/change as a conversation and knowledge, expanding the time of this "dialogue" to make it change.

The experiment could be understood as the situation where we have met someone with whom we can have a conversation, and we are going to change the technology, the communicational parts as well as other aspects of the dialogue. The more interventions the dialogue has, the experience will give to all more knowledge about each other.

Imagine ourselves talking/experimenting with other beings, plants, animals, even with other materials or cells, even virus. We could observe how light affects them through the sound of a heart, or watching the light activated by the sound, or the noise of an electronic circuit. Every sound that we can capture or simultaneously reproduce/amplify, we could observe what happens and what can this alteration can mean. Even "musical instruments" could be built, to generate "songs" with a specific purpose.

There are infinite possibilities and applications, which can help us develop new communicational systems. This can also have consequences, because through this experimentation, the idea of graphic design (visual communication) can be expanded. It is conceivable that providing/amplifying the visual conversation, the graphic design concept can be widen.

I was looking for a PhD related to research on graphic design, but it was not easy to find. One of the reasons of this lack of supply may be that there are possibly not many researchers currently working in this direction.

I personally consider that this discipline could/should be extended, and that here, in this project there can be an alternative, which also gives more sig-

nificance to the "graphic" designers' work, and which is likely to expand knowledge from different perspectives.

In the process of design it could be possible to apply all of the aspects that have been mentioned here, creating new kinds of "products". That could also be used by the society, in the way of being graphically/visually "more/differently" communicative through the generation of new systems to use for visual creations.

Another potential consequence could be to be able to modify the colours and shapes through the observation of other beings, or objects, using, for instance, a "concrete kind" of transmitter, or a speaker.

The evolution of the experiment can also contribute to imagine the possibility of connecting a receiver to the brain or to a muscle, or to anything that could give information from our body, to alter the vision. It could be tested on others items to compare the results, and then, maybe, we could see different kinds of visual representations.

- How would it be possible to go into the imaginary of everyone?
- Is it possible to capture the cerebral actions that we do *involuntarily*? Do they generate sounds, noise?

And, what can happen if we consider that we could add this new way of *seeing* to our body or inside of it, using the technology?

- Should/could we modify our vision for our own intentions?

Robotics can also be a helpful tool to create a communicative mechanism, connecting the programs with the body using objects.

- What could happen if we imagine a robotic lens with visual structures, that acts/reacts when *some* inputs, defined in the program, modify the perception of reality?
- What about the possibility that this lens could actually modify reality, in some aspect, in order to give us information that we cannot capture directly with our eyes?

With robots we could also expand our body and the communication that we have with it. Perhaps this programming system could be more visual and less “numerical”, or both at a time.

All of these ideas could work in the micro and macro dimensions, and would also expand the quantum knowledge through other theories.

- What could happen if we, intentionally, alter the *vision* of other things, such as cells, matter, light?

### VIDEO:

Amongst other possibilities, the chosen one was to record a video focusing on the experiment’s functionality, showing all the aspects expressed in this part of the project.

The readers will find this video as an attached file to the project.

In the video it is shown the assembly of all the pieces that the experiment needed in order to work properly, as well as the final “staging”.

The experiment was switched on after the sunset. There are showed some images of the “control desk” and all the linked pieces of the experiment, to see how it works, all together. Finally, we will presence how the reflected image is generated.

During the video the heart sound can be heard until the end, where it will be emphasised.

“[...] el observador está separado de las leyes del mundo por las condiciones físicas especiales de su plataforma de observación.” (Feyerabend, Paul 1986:138). [\[Annex-\*xlvi\*\]](#)

It is stimulating to regard this kind of visioning (related to the video concept) as a particular and limited observer’s platform, full of possibilities and interpretations. It is limited because we cannot decide the focus and framing; however, inside of this limitation there are some alternatives and also our personal interest focus. This arguments can be compared to the limitations that our own vision has.

- Does it add more limitation to the vision, or does it help?

Because through a video we have the opportunity to observe the images repeatedly, and somehow, to see each time different elements which are going to change or amplify the first understanding of the video.





[G]



[H]



[I]

[Click here to watch the video](#)

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[G, H] (Video preparations).

[I] (Screenshot from final video).

### CONCLUSIONS OF EXPERIMENT:

The link between the body, the sound, the tools and the technologies is actually expanding in our society, and it is a change full of potential we have to take advantage of.

There are “infinite” potentialities which can improve or/and change the actual way of living, even the way how we understand the world. The perception of the world and the knowledge we have of it will also be modified.

To draw on this situation, it could be interesting to take all of the possible knowledge that we currently have, and try to apply it in other directions.

Daydreaming could be understood as an “imaginative” process and it then would be a good tool for experimentation. It is born in the mind and can come out through a “worldwide conversation”, which could include technology. Through this kind of dream we can invent a reality, our personal options, and even future perspectives. “Estamos hechos para vivir en un mundo inventado de ensueño.” (Pallasmaa, Juhani, 2006:33). [Annex-xLix]

As for this experiment, the fact of generating images gives more options to the imaginary, and it can transform the place where it happens. This is going to come to our memory and even when this images disappear from the specific place, we will be able to remember this situation as well as the transformation that it had, but at this precise moment our imaginary is also working and we can even daydream.

“Sentimos placer y protección cuando el cuerpo descubre su resonancia en el espacio.” (Pallasmaa, Juhani, 2006:57). [Annex-l] The sound in this experiment takes different behaviours. It goes out of the body and takes part in the environment, transforming it, in the way that the sound alters/transforms other sounds from the surroundings, sounds “living” where the experiment is exposed. These sounds are those that we remember and help us to identify one place. For example, “our” homes have “personal” sounds, which during the day and the night remind us of where we are.

Dealing with the heart sound: when somebody is in a room, for instance, they will cause a “minimum” sound alteration, because the heart is “inside of the body”. Then, when we amplify the heart’s sound, vibration and the sound itself will cause an alteration on the other sounds; if the vibration was sufficiently strong, it would even be possible to move matter, objects or other items.

It can be concluded, thus, that the consequences of the experiment may go further than expected and beyond its original purposes: for the same reasons, it can be stated that knowledge can come from “places” where we had, in fact, no intentions to act.

No experiment can be isolated and every single element has consequences to other ones, which could sometimes be no easy to predict.

The surprise factor can add value to the experiment, and it can allude to the invisibility.

El conocimiento, así concebido, no se obtiene intentando asir a una esencia que se encuentra más allá de los informes que nos ofrecen los sentidos, sino 1)colocando el observador en la posición correcta respecto del objeto (proceso, agregado), insertándolo en el lugar apropiado del modelo complejo que constituye el mundo, y 2) sumando los elementos que son observados en estas circunstancias. El conocimiento es el resultado de una inspección compleja llevada a cabo desde una posición ventajosa. (Feyerabend, Paul 1986:239-240). [Annex-Li]

During the experiment, there can be more observer’s positions to which we can also include the camera as observer, for example during the recording of a video. Every observer has a privileged position with respect to the others’, because each perspective shows different and unique alternatives.



## **Methodology**

CONTEXT:

Newton tuvo sus dudas sobre la naturaleza corpuscular de la luz, pues también reparó en el fenómeno que ahora llamamos interferencia. Sin embargo, y a pesar de no estar del todo convencido, finalmente se decantó por la opción de que eran partículas.

Más seguros, en cambio, estaban los fieles newtonianos que le sucedieron. Su teoría corpuscular de la luz fue aceptada por la comunidad científica durante años.

De hecho, al presentar su teoría, Young se encontró con la resistencia de la gran mayoría de sus colegas ingleses. (Fernandez-Vidal, Sonia 2013:81).

[Anex-Lii]

Research is a collective and plural act that mixes different disciplines, and that can help to assemble ideas, methods and paradigms. This could be the way to live in a comfortable world, because without respect and interest between every parties/disciplines, then the energy goes somewhere else, probably a much more boring place.

As for the discussion between disciplines, it is desirable that each person feels confident. It is a verbal dialogue that helps all the parties implied to expand their ideas.

Art and science are not separate domains, but rather two dimensions in the common cultural space. This means that something can be more or less artistic, while nothing would be already said about the amount of being scientific. (Klein, Julian 2010:2-3).

This research is located in the middle of many concepts from different disciplines, which are, in the context, totally related. During a long time, I have been curious for quantum theories, having always in mind to start learning about them. The opportunity to apply that kind of theories came with this Master's degree, where I started to learn about them. The final "product" was born mixing this curiosity for science with the discipline that I have learned in the university, graphic design, finding a shared path to walk together.

All along the reading of my first "quantum" book; Greene, Brian B., (1999), *El universo elegante*, I was totally motivated, because it felt like discovering a new "world".

After a suggestion of a Master's teacher, I decided to look for one experiment that could have something to do with my degree.

As the reader already knows by now, it was the Thomas Young experiment. The reason for that choice was because it has to do with light, and this aspect has helped me to link it directly with the visual system. This experiment is expanding, not only the concepts related to the visual communication, even matter and the vision of the "world".

After that, the next decision was to apply these concepts to all the projects that I made during the course. The most important reason to do that was to demonstrate that these concepts can be a helpful tool that can work in different perspectives.

With all those concepts I have written a short story. I began investigating about the transparency concept of our own body and the connection that it has with the mind; then I used some research on an agricultural park to try to define with language and vision the concept of that place. Through some pictures and a theoretical part I managed to represent the absurd concept that R. Feynman exposed trying to describe the nature through the quantum mechanics.

So, in the end, this experience gave/is giving me the opportunity to improve and expand not only my personal perspective but also more possibilities to add to other aspects, such as graphic design.

All of the thoughts that I have exposed here added chances to develop my profession and even my private life. The research has generated a new perspective of the reality which I would like to expand and to apply to different points of view.

The final conclusion to all that is: if one wants to change some aspects of oneself, one must look carefully –around, within oneself, to others, to all directions; even inside and outside of our current paradigm. The same ap-

plies to one's job. Graphic designers and graphic researchers will have to look around and also far away from where they currently are.

Therefore, there can be no categorical distinction between "scientific" and "artistic" research – because the attributes independently modulate a common carrier, namely, the aim for knowledge within research. Artistic research can therefore always also be scientific research. (Klein, Julian 2010:4).

This research uses and applies aspects from different knowledge perspectives. The argumentation that I have used in this research is around separate elements/theories, people who develop them did not think about the applications here exposed, and these theories have been used, in the end, with other intentions, in a shared dialogue.

This dissertation has information from books of several fields of knowledge, such as scientific, artistic, design, linguistic or philosophic. These fields of knowledge have much in common and to share and to listen to and from each other. Only, a structure needs to be build, with which each of them can have access to the others.

Hay intuiciones geniales que pueden tardar décadas, tal vez siglos, en ser demostradas, pero el espíritu humano ha llegado donde está gracias a su capacidad de sumergirse en los abismos de lo que casi no puede ser nombrado. (Fernandez-Vidal, Sonia 2013:119). [Annex-Liii]

In the text written in this project, words and terms such as invisibility, no-words, system, communication, visual, light, quantum, image, world, paradigm, knowledge, experiment, translation, are repeatedly used. These terms are helpful to demonstrate that there is something else that we cannot explain right now. It can be because we have not got the knowledge yet, or because, in general, the social paradigm we are living in does not have access to it. It is something that we cannot exactly explain but that we can be "specific" about, with the knowledge that we have but that we still do not know how to use or turn into "real".

For now, we can talk, imagine and venture about the expectations as well as about the consequences that it could have, in the present time and perhaps in the future.

We have to keep in mind as well, that methodology sometimes means fighting against mentality and beliefs. It is curious to think on how we build our mind –the way of thinking and the influences that it has- when we try to do something that is not inside this structure or that does not "exist". A reasoning can be imposed by the structure and/or by the personal experiences and beliefs.

The ordinary world is useful because it is where we can find others and their opinions, but out of the standards there is an infinity of possibilities where we can act, think and change. Perhaps we do not need a standard at all to find ourselves and communicate.

Incommensurable:

Feyerabend attacked analytic accounts of ontology on the grounds that there have been meaning changes due to theoretical advance that have altered our very conception of the nature of reality. He argued that protocol sentences do not provide a neutral means with which to test theories, because the meanings of their terms must be interpreted according to the theories being tested. (Oberheim, Eric 2006:8-9).

He also used the definition of incommensurability as an argument of pluralism. (Oberheim, Eric 2006:13).

During its developing, I decided to change the first perspective about this project. Firstly, this research was going to be completely theoretical, but during the investigation it started to become clear that it was advisable to put the concepts in common with a practical perspective. Consequently, the final version is indeed a practical one.

The resources used in the experiment were sometimes difficult to find, but with the help of so many people I could finally find the way to experiment with all the things that were needed.

Then, with the included practical process which was developed through the concepts that we have read here, I decided to defend and use the incommensurable concept throughout the theoretical and practical part. Applying this idea of “pluralism” we can be open to accept the ideas and theories from other areas of study, from academic references and from others of outside the academy, because there is usefulness in them all. Every point of view is significant when we consider that, for some reason, sometimes great ideas come from the link, connection that is possible to make through all of the elements that surround us in our daily lives.

It should not be forgotten that a change of paradigm can be a methodical and slow process, which perhaps should have, to a certain extent, a little intention of revolution.

- If companies do it with their products, why can we not do it with knowledge? (It might be even more fascinating and gratifying).

Society should be ready for every change and make it happen in time. The general social capacity could be blocked otherwise. A fraction of this global capacity somehow depends on the structure and methodologies that we have learned (or not). That is why in some cases, it could be difficult to “open a new door”. Somehow, we can base our research on structures that were thought to develop other specific “intentions”, but that can provide access to develop other methods, or that can also help to find a solution that was not expected from “the/a specific method”. This process can also be related to the experiment: through it we can find an emotional side of the personal sound of the heart, which puts emphasis on subjectivity by considering it unique; moreover, in the experiment each person can choose to give access to others to their subjectivity, which is normally personal and private. Perhaps it would be stimulating that everyone could have their own methodology, which could be applied

to and shared with other areas to expand the ideas around them, or to other ones that seek to be modified or used in the contexts that everyone prefers.

[...]el mundo que deseamos explorar es una entidad en gran medida desconocida. Debemos por tanto mantener abiertas nuestras opciones y no restringirlas de antemano.

[...] el cultivo de la individualidad que es lo único que produce, o puede producir, seres humanos bien desarrollados[...].

(Feyerabend, Paul 1986:4). [Annex-Liv]

It can be easier to understand the term individuality with this example:  
- If each one of us wanted to use the same items as me, then we would also talk about the same, in the same way to everybody; then, nothing would make sense, because we would talk nonsense, as we would already know the answer; so, in fact, it would not be necessary to talk or to read or to communicate at all.

Perception can also have conceptual connections with the incommensurability concept. Our perceptual system can produce objects which are not easy to compare. We can use the memory to compare them, but it would not be possible if we considered the same description. [51] If we understand everything that we can see through “standard” options, we will never see other/alternative possibilities.

In relation to the both states of the light (particles and waves), Feyerabend said that this theory could only happen because some of the thinkers decided not to subdue with obvious rules or because they broke them involuntarily. He also defended the idea that this kind of liberal practice is absolutely necessary for the knowledge to develop. [52]

Going back to graphic design, we shall take into consideration the reason

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[51] (Feyerabend, Paul 1986:217/218).

[52] (Feyerabend, Paul 1986:7).

to change it. I used to feel blocked with the projection of my work as a graphic designer, and also with the social perspectives that it currently has. I was not pleased with this situation, so this project has the aim of bringing the opportunity to change it, and also to find a place to improve and be listened by someone who can/could support these intentions. (*Una investigación empieza por un problema, dice Popper*). “Primero, tenemos una idea, o un problema, después actuamos, es decir, hablamos o construimos o destruimos.” (Feyerabend, Paul 1986:10). [Annex-LV]

My problem was, basically, that I could not find a job related to Graphic Design with which I could earn a living. All of the options that I used to be offered when I finished my Degree were nonpaid, underpaid, or even costly internships, so that made it impossible for me to become an economically independent person, a situation that seemed not fair to me. Consequently, I had to look for other career options. I had been working as a freelance for some time, until when I decided to move to a different country, learn other languages (Deutsch), and so many other things to improve my life situation, up to now. The consequence of this situation was that I spent so much time searching different opportunities and thinking about alternatives that could make me feel better. Finally, I decided kick-start change and improve the perspective of graphic design and the work life structure that this profession has sometimes, in some places. When I was a kid I was already thinking all the time about colours, light, eyes, and such. It was kind of an “obsession” that I used to have. I also used to come up with theories that I then shared with the family. They used to think that what I was saying was somehow funny, and they would always laugh at the hypothesis that I had exposed. I used to ask them things like: how could they prove to me that we were seeing the same, even with colours or shapes? They must have thought that these were childish reasonings.

Quite a few years after that, my family saw a researcher on TV that was defending exactly some of the “childish” questions that I used to expose to them.

This example helps to understand that sometimes people think or need to hear the theories from someone such as an accepted scientist. It can be reasonable, indeed. The context to communicate the ideas is also decisive and has an impact to the message. This situation can be compared to, or can come from, the vision that “we” have about some structures or systems that can be accepted as the “truth”.

- How can we know if something that we are discussing with someone is relevant or not?

Probably the topic in discussion can come from the arguments and referents that they have about it.

In conclusion, we need to know more of ourselves and others, as well as to listen more to both. Consequently, personal arguments should be always in discussion and shared, because they are, in turn, built with other “personal” points of view. Life and world are built through these subjective connections.

However, we have to give the opportunity to begin. People cannot begin with full knowledge, even if this knowledge seems obvious to us.

Thus, it can be comprehended that my own voice or perspective might sometimes not be accepted for itself. We need to give arguments from other “accepted” readings or people, and even from other “not academically accepted” sources. This is the point: to keep us open to everything whilst selecting the information that is going to come into our opinion. The necessity to share is similar to the necessity that knowledge has to be improved.

About quantum theories:

[...] éxito no puede considerarse en modo alguno como un signo de verdad y correspondencia con la naturaleza.

[...] surge la sospecha de que este pretendido éxito se debe al hecho de que la teoría, al extenderse más allá de su punto de partida, se ha convertido en una rígida ideología.

Su “éxito” es completamente artificial.

(Feyerabend, Paul 1986:27). [Annex-LVI]

An artificially successful success could be related to the standstill knowledge.

The decisive point here is to take into account that what can be helpful for now, may not be so for tomorrow, and to accept this as something “natural”. As we have read here everything is in change, time showed it to us; so how can we pretend to stop it and create something static?

This argumentation is also in relation to the communicational structure that we are nowadays using. It is not considering alternatives, shared in the school as “The system”. Somehow it is stopping “something” that could affect to the knowledge, even the vision.

Everything, even the thoughts and ideas that I am writing here, can be modified, by myself or by other people, who may be reading it right now, even during the process of reading.

To be successful could mean nowadays to have the opportunity to develop the ideas that we have along with the chance to show or share them.

Es posible conservar lo que podríamos llamar la libertad de la creación artística y aprovecharse al máximo de ella, no sólo como una válvula de escape sino como un medio necesario para descubrir, y tal vez para cambiar los rasgos del mundo en que vivimos. (Feyerabend, Paul 1986:37). [Annex-Lvii]

For this reason, these interdisciplinary projects are like making a “dream” come true, because people have the opportunity expose science (quantum) whilst also argue about philosophy, linguistics, biology, and all sciences. All what seems relevant to the project, and that helps to expand the ideas that we have, should be taken into consideration. However, not everything, as I have exposed earlier, could be useful.

The concepts also depend on the context, and on the personal vision of the person that exposes the ideas. The perception does also influence the information that is being communicated.

Feyerabend exposed an idea using an external comparative measurement,

which included new ways to relate concepts and perceptions. “Por el contrario, semejante impresión de extrañeza revela que las interpretaciones naturales están funcionando, y éste es un primer paso hacia un descubrimiento.” (Feyerabend, Paul 1986:61). [Annex-Lviii]

To avoid from our interpretations some aspects that come to us through the experience, for example, can be counter-productive, because they are the cause of our way of thinking, as well as our perception of the world. This is, in some way, our coherence.

When we discover something new and interesting, it is likely to look weird to us at the beginning.

It is as if we travelled to a totally different context, environment and culture; then we would realise of the conflicts between the things that we normally do (habits); and then, from this new place, we would have the opportunity to see them through another point of view, amplifying the understanding about the reason of the habits. It would also contribute to generate a new point of view about our personal life, which can be applicable to the things that we see, touch and feel.

This could also be considered as a change of the “personal” paradigm. In this kind of situations, we can feel several emotions: surprise, weirdness, astonishment and so on.

And what happens with our actual paradigm?

It works through the classical physics laws, but we have discovered some other laws (quantum) that also explain the paradigm where we are. Perhaps the system itself is stopping our adaptability to it. It is curious because these theories were developed through this “classical” paradigm. It is possible to add their conceptions to our reality even without seeing them because we can confirm them by performing the experiments.

This possibility was somehow possible with the use of the “ad hoc” concept. It is a Latin locution, which can be translated literally as “to this”. *Ad hoc* can be used for a specific usability towards a concrete end. It is

also “acceptable” that the hypothesis used can contradict some accepted aspects, but those hypotheses can be demonstrated through the experimentation.

“La teoría cuántica puede adaptarse a un gran número de dificultades. Es una teoría abierta en el sentido de que las inadecuaciones aparentes pueden explicarse de manera ad hoc,[...].” (Feyerabend, Paul 1986:26).

[Annex-Lix]

What it could mean is that if something is apparently correct, it might still not be accepted because it does not work within the system where we live. A system that, at least, we have not chosen.

Then, what can we do if we want to give possibilities that can be experimentally accepted but out of the established “laws”, provided that we, as a decision, would not like to use the locution *ad hoc* as a justification? Which possibilities do we have, then? Moreover, is there anybody who considers that something can be truly ad hoc? If it is like this, who is this person and why do they think this way?

Perhaps we want to consider our investigation out of the ad hoc and the rest of theories. Accordingly, should we then search a *coherent* or a *decoherent* way to explain it?

El asunto de la creación “ad hoc” de un sistema conceptual específicamente cuántico se traduce de hecho en la discusión sobre la posibilidad o no de construir términos de nueva significación, no enraizados en el ámbito de significados ya existentes, dado que éstos se hallan contaminados con connotaciones procedentes de la experiencia ordinaria y de la intuición. En definitiva, se trata de saber, como nos decía Félix Bloch, si podemos aspirar a un auténtico lenguaje de nueva creación.

(Mataix, Carmen. Rivadulla, Andrés, 2002:146). [Annex-Lx]

Therefore, as we can read in these examples, “ad hoc” can even have a big adaptability and could be a great tool to produce a change and to

create alternatives to the actual knowledge. In this last quotation, we can find a link with the language, which in the end is also related to the communication.

It can also be helpful to create new experiments, situations and facts; it could even help to expand a specific field of knowledge.

It is interesting to defend the new theories to “slowly” introduce them as little advances and possibilities. For me, it is like keeping the research alive. It needs to eat, to change, to have experiences, and so on, just like any other being. Because it is a part of us, and the reality is also “something” alive that should be in constant adaptable change.

“No existe una sola regla que continúe siendo válida en todas las circunstancias y no existe una sola instancia a la que se pueda apelar siempre.” (Feyerabend, Paul 1986:166). [Annex-Lxi]

We could accept the fact that there is no concrete truth, but:

- Do we have to choose a specific way to act?

If we decided to perform an experiment, then we would have to be specific with it, or could we leave open possibilities?

What is clear is that we have to make a decision, which is going to create one perspective or another. It is in this act of deciding that we can define and defend the ideas that we want to expose.

Todas las teorías del conocimiento (científico) surgen de la cuestión: ¿Qué es el conocimiento, y cómo puede detenerse?

Nadie acepta que pudieran existir varias formas de conocimiento y que tal vez sea necesario tener que hacer una elección.

(Feyerabend, Paul 1986:203). [Annex-Lxii]

The decision also gives an opportunity for improvement in other ways, just as the decisions that we have not made and amongst which we had to choose. If we choose is because there are other possibilities.



### STRUCTURE OF THIS RESEARCH:

This part will expose some of the decisions that I had to make to turn this project into “real”. The first choice that I did was to begin to learn quantum and not anything else. The reason was that some people who had mentioned these theories to me had made me feel curious about them. The second one was to select a quantum theory which could add signification to “something visual”. And light, of course, had a lot to say.

Thanks to the lessons in the Master’s degree and the conversations with the classmates, I started to feel more confident about my ideas.

The connection between graphic design and quantum was an intention since the very beginning. What I did not know was, how, up to what extent, these ideas could work together.

Day after day, I found connections between everything that I knew as well as between the new knowledge that I have learned during this year. Until some point, when everything that I could read, see or listen, had a connection with the project. It was as if everything could be related to the theory I was researching about. However, even in this situation, it was still not possible to bring these two perspectives together.

In a particular moment, Laura Benítez decided to be my tutor; then other possibilities arose. She gave me a lot of references with a perspective I was not previously aware of.

Through Paul Feyerabend, Karen Barat, Katherine Hayles, Donna Haraway, and all the other sources mentioned in this project which have a fascinating perspective of the reality and also about its structure, I could begin to think about the possibilities that the ideas about context and vision could have. After that, the concepts about invisibility, structures, systems, and so on, began to arise from readings.

My ideas began to explore new directions. It was then that I decided to

perform an experiment. The experiment would help me to see the project as a conversation. This idea opened another door. This was the communicational language, where I have found connections between the system that I have used during the University to add to the Graphical Ideas. That was the moment when the idea that I am developing here came to my mind.

I have found the readings visiting some libraries, looking for new references for the concepts here exposed, for example vision, system, communication.

With the academic references and the non-academic ones, I decided to compare the ones to the others, and I found that both were very helpful, perhaps in different perspectives, but helpful anyway.

And, how did I find my references?

Thanks to the teachers during the lessons, classmates, in the library and bookshops, talking to many people in general. And the guide was the concepts’ connections that I saw between the readings. It could be considered as a conversation between the authors.

I could not read all of them. For this reason, I decided to add a “Pending Bibliography” section, to communicate which would be my next ideas about the research, although knowing that it can absolutely change.

“Todo sirve”, no significa que vaya a leer todos los artículos que se han escrito. [...] Significa que yo hago la selección de una manera muy individual [...] porque no puedo atormentarme leyendo cosas que no me interesan, y mis intereses cambian de semana en semana e incluso de día en día. (Feyerabend, Paul 1986:206). [Annex-Lxiii]

- Why is this project written in English?

It was a consideration since the beginning, because of the intention to apply to a PhD, as well as because of the lack of clues about from where



“on the planet” this chance is going to come. The plan is to send it to the universities that I have found and that seem related to these ideas, and also which could have interest on it.

On the other hand, it is also an opportunity to improve my English level, using that on personal interests, as well as because it is a language that many people can understand and read around the world. This project aims to be ready to be sent to anyone, anywhere.

Writing it in English had a double effect. First, it helped me to understand the theory more deeply because often I read in Spanish, so I had to translate all the ideas to use them in the project. The other effect of using a foreign language instead of my mother tongue is that I should be sure about the words used in the descriptions and explanations. It was important to be direct and clear to give the crucial information clearly.

During the process of writing the text, it was decided to translate some of the Spanish or Catalan quotations into English. The intention was to facilitate the reading to everybody.

The use of the quotations during the text was varied, sometimes I have directly translated to maintain the conversation/reading, and also because I considered that it could help with the understanding. Sometimes in this kind of quotations, I added some personal opinions. The other case is literal quotations, which can be clearly identified. In both cases, the specific reference is given.

Al pasar del estudio de campo a sus propias concepciones y a su lenguaje propio, por ejemplo el inglés, el antropólogo comprueba a menudo que se hace imposible una traducción directa y que sus puntos de vista y los puntos de vista de la cultura a que pertenece, son inconmensurables con las ideas “primitivas” que él ha empezado a comprender (o también, puede haber coincidencia en algunas partes e inconmensurabilidad en otras).

(Feyerabend, Paul 1986:268). [Annex-Lxiv]

The probabilities that we can find during the act of searching may come from being very adaptable to any circumstance, and leverage the opportunities to talk to everyone. By sharing information, we can find much more.

With this project I have not used a specific methodology, even the parts and the structure of this project were decided during the writing process.

## CONCLUSIONS OF METHODOLOGY:

The intention of this section is to explain the reasons for every part of the process as well as the use that I wanted to get of each. The decision was to explain everything in the way how I see it or feel it, expressing everything from myself, offering, in some way, access to my thoughts.

All along the text, the reader will find some questions and doubts that I regard stimulating to ask, but most of them are rhetorical questions, so it might be impossible to find an appropriate and complete answer to them. They can also be used as a reflexion to imagine and reflect on the ideas.

“[...], en una democracia la “razón” tiene tanto derecho a expresarse y ser oída como la “sinrazón, en especial a la vista del hecho de que la “razón” de un hombre es la locura para el otro.” (Feyerabend, Paul 1986:209).

[Annex-Lxvi]

The main aim of the whole project is focused on the intention of trying to create a change in the graphic design field, which could also help or add knowledge to other kinds of concepts. The perspective of this is also to give the opportunity to imagine future possibilities and alternative perspectives with the intention of transformation.

[...], el investigador no debe intentar conseguir una mejor comprensión de las ideas de la tribu comparándolas con ideas que ya conoce, o que le parezcan más comprensibles o más precisas. En ningún caso debe intentar una reconstrucción lógica. Semejante proceder le encadenaría a lo conocido, a lo que es preferido por ciertos grupos, y le impediría para siempre asir la ideología desconocida que está examinando.

(Feyerabend, Paul 1986:244). [Annex-Lxvii]

Being open to the possibilities, even with the aspects that are here exposed, can be considered as an intention of being accessible and adaptable.

## Conclusion: future perspectives

Life(s) strives to change. When we try to stop it, we are collapsing the “world”. If we want to be a part of it, we should be open to the facts, language and experiences.

We, as observers, can modify our position, changing the perspective that we have about ourselves. We have a determinate position about what we are: so, if we modify it we will also change our vision, which could include the visual system and the visual communication.

“Philip K. Dick novels [...]. The problem of where locate the observer - in or out of the system being observed?-is conflated in his fiction with how to determine whether a creature is android or human.” (Hayles, N. Katherine 1999:24).

We can also modify the vision that we have about the information.  
- What do we imagine in our mind when we think about information?

Do we imagine a mass, or a plant, fluids, biotechnology, which with their shape, colours, sizes represent the word's information?  
Is this mental vision that we have about this word limiting the process of “capturing” information?

Thus, the mental image that we have about everything also creates the limitations that we can have in the “physic” reality. Our body is no longer a body; nowadays we are expanding it with technology, which “invisibly” moves us to other places. We can be “present” at other places where we never went, for example, during a video conference, through a screen, augmented reality, amongst others, which are mostly visual communication. We are looking through technology; we use it.

If we add technology to our body, with which we can expand our vision, but with which we cannot communicate directly with our mind, is it going to be truly helpful? Then, we will always need something else to expand and improve whatever this technology is doing.

One way to improve “technology” could be by generating or manipulating living materials, mixing biology and technology.

- Could this biotechnology act as a virus, which would transform ourselves in the way that we want or imagine –perhaps something similar to the chameleon concept?

- If the image that we have about ourselves can be modified, then would it make sense to debate the importance of the self-image? It can even be thought that it could be more decisive to ponder whether the transformation depends on personal states and emotions.

With the modification of our body is understandable to consider the visual communicative consequences that it can have, because we can also modify the way to see (our visual system) from a lot of different perspectives: from altering our eyes, adding technology outside of them, to modifying the optical nerve which is transmitting the visual information from the photoreceptors that we have in the eyes to the brain.

- I think that it is interesting to imagine in which ways vision can be modified, experimenting with that, and discovering alternatives for the visual communication.

It is possible to regard all of these facts without thinking that is necessary to modify our body, it can also happen by adding technology or biotechnology around us. Furthermore, all of this kind of technology can be based on communicative processes, like we know, but we can modify the way to do that. With colours, textures, and so on, which can add different kinds of information. Even the disposition, location, where it comes from, the environment is also visually communicating the intentions of that. So, first, we should understand why, and then use it to build alternative perspectives and structures to create a communicative system which also includes a conversation with intentions through the technology.

- Could/should we be free to be free to *hack* our body? What about the environment and the context?

- Can we also hack the communicative visual system through biotechnology, by adding that into our bodies, or into other beings, or with *robots*?

We can see “our body” as something that is part of us, but does the body identify itself as how we see us? Are those two separate elements?

“Identified with the rational mind, the liberal subject possessed a body but was not usually represented as being a body. Only because the body is not identified with the self [...].” (Hayles, N. Katherine 1999:4).

With all of this concepts we can imagine or contemplate what we are or how we would like to be. Perhaps the future could come from keeping the body in one physical world whilst the mind in an intangible one, with the possibility of changing in between both “worlds”. Then we might be able to work through a new system made with two more realities, two more dimensions.

- Where is the limit of ourselves? Is there a state of decoherence between our body and our mind?

“[...] the shifting boundaries between observer and system[...] [...] we see only what our systemic organization allows us to see.” (Hayles, N. Katherine 1999:9/11).

The system gives us the opportunity to see what we see. By modifying this organisation, we might be able to see the “world” differently.

Then, virtuality can also be associated with the “image” that we have about one/the “reality”, which can be generated to be mainly observed via a screen. This virtual image/world is build within a visual system and using a concrete language/code. In this world, the information is transformed and transforming. “When I say virtuality is a cultural perception, I do not mean that it is merely a psychological phenomenon.” (Hayles, N. Katherine 1999:14).

Continuing on the subject of virtuality, I shall add the concepts message and signal, as they can work as shreds of evidence, clues about where or how this information can be materialised.

If we think about a virtual image on a screen, with which we can act playing somehow on/in it, and this image (the space that it represents) is built through a code and language, which contain the information that this image needs in order to be an image on a screen, then, the information does also give the key, and pieces of evidence to the tablet, for example, to be as what we are “going to” see.

“As Carolyn Marvin notes, a decontextualized construction of information has important ideological implications, [...]” (Hayles, N. Katherine 1999:19).

With this virtual images we, as beings, also have an activity. We punt information through images and language as a communicative act.

- Are we virtually extending our mind through the internet?
- Is our body having problems of being part of this, as it is currently?
- How could it be possible to extend the body through the virtuality concept?
- Is the biotechnology the way to build this possibilities?

We need to create virtuality’s conditions, which could also be related with the body. If we create a context, environment, then we could argue through it and generate a situation, even if it only was an imaginary one.

Which could be our future as humans, how is it going to change our point of view as observers? If we could modify our perspective, the world would absolutely change.

In future, we might even be out-bodied in order to be virtually in-bodied. Biology is going to play a leading role in the next technological era, and thanks to it we could have the opportunity of modify the vision.

- Could we be, consequently, absently-present?
- Could we live in a decoherence world, where everything is susceptible to be one or infinite possibilities?

- Could we imagine that this could be the best way to observe the *world*, the *life*?

Someday and somehow we might be able to build everything with our mind. Perhaps we are doing it “right now”. However, it is likely that we will always need “to build” an environment.

[..], for the more we understand the flexible, adaptive structures that coordinate our environments and the metaphors that we ourselves are, the better we can fashion images of ourselves that accurately reflect the complex interplays that ultimately make the entire world one system.  
(Hayles, N. Katherine 1999:290).

Imagine that we could build a body which represents the mental image that we have about ourselves, and this body could work in a system that we invented, which could also generate other bodies as an extension of ourselves and so on and so forth.

We have a limited body; why could not we expand it through bio-/technology, or by adding robotic parts to our body, which we could program ourselves?

Our brain can add and work with additional pieces, take for example the prosthesis that medicine can implant to the body nowadays. In these cases, the body is sometimes extended, or there is a change in the functions that it originally had, for instance, a hand that someone lost and the new one implanted, which has more options or different ones, thanks to its design.

It is likely that in a very near future we start contemplating all this as a real option, with no need of losing any part of the body, just to add or to change the “reality”, and the vision that we currently have about it. Then, the visual signal, code, could come from many different kinds of transmitters, which would work through different languages. All of this opens the possibilities to expand the vision inside and outside of our body, planet, even space!

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## Bibliography

### BOOKS:

Barad, Karen, (2012), *Documenta (13) notebook series "100 Notes - 100Thoughts"; What is the measure of nothingness? Infinity, Virtuality, Justice*, Kassel (Germany): Hatje Cantz.

Clegg, Brian, (2015), *50 Temas fascinantes de la física cuántica*, Barcelona: Blume.

Del Giudice, Daniel, (1987), *Atlas Occidental*, Barcelona: Anagrama.

Fernandez-Vidal, Sonia y Miralles, Fransesc, (2013), *Desayuno con partículas*, Barcelona: Penguin Random House (Plaza Janés).

Feyerabend, Paul, (1986), *Tratado contra el método*, Madrid: Editorial Tecnos.

Flusser, Vilém, (1994), *Los gestos*, Barcelona: Herder.

Greene, Brian B., (1999), *El universo elegante*, Barcelona: Editorial planeta, ed-critica.

Groys, Boris (2012), *Documenta (13) notebook series "100 Notes - 100Thoughts"; Google: Words beyond grammar*, Kassel (Germany): Hatje Cantz.

Martínez Ron, Antonio, (2016), *El ojo desnudo*, Barcelona: Editorial Plante-ta.

Mataix, Carmen. Rivadulla, Andrés, (2002), *Física cuántica y Realidad*, Madrid: Facultad de Filosofía, Universidad Complutense.

Munari, Bruno, (1985), *Diseño y comunicación visual*, Barcelona: Gustavo Gili.

Navarro Lluch, Josep-Lluís, (2016), *Teoria lul·liana de la comunicació*, Argentona: Voliana edicions.

Oberheim, Eric, (2006), *Feyerabend's philosophy*, Berlin: De Gruyter.

Pallasmaa, Juhani, (2006), *Los ojos de la piel*, Barcelona: Gustavo Gili.

Sales, Martí, (2015), *Principi d'incertesa*, Barcelona: Males Herbes.

#### THESIS:

Milne, Joanne Leonie (2015), *Invisible Structures*, Facultad de Bellas Artes, Universidad de Barcelona.

#### WORKING PAPERS:

Deleuze, Gilles, *¿Qué es el acto de creación?*, (17/05/1987). Fundación FEMIS.

Elkins, James, (2017), *The Visual, chapter on "Time and Narrative"*, Academia.edu (web).

Hayles, N. Katherine, (1999), *How we became posthuman. Virtual Bodies in Cybernetics, Literature, and Informatics*, University of Chicago Press Chicago & London.

Klein, Julian, (2010), *What is artistic Research?*, Berlin-Brandenburgische akademie der Wissenschaften.

#### WEBS:

Amela, Víctor-M., *Miopía, alzheimer..., peajes de nuestro cerebro moderno*, La Vanguardia (17-12-2014).  
[http://prensa.unizar.es/noticias/1412/141217\\_z0\\_VA-ult.pdf](http://prensa.unizar.es/noticias/1412/141217_z0_VA-ult.pdf)

Arsuaga, Juan Luis, Bermúdez de Castro, José María y Carbonell, Eudald, *Fundación Atapuerca*, (2017).  
<http://www.atapuerca.org/ficha/Z1DEE01B2-A9AC-37B2-C2F3EE-1769159DEE/emiliano-bruner-aporta-nuevos-datos-sobre-la-evolucion-del-cerebro-humano>

Aznar Casanova, J. Antonio, *Psicología de la percepción visual, Ph DrVision & Control of Action (VISCA) groupDept. Psicología Basica. Facultad de Psicología. Universidad de Barcelona*.  
<http://www.ub.edu/pa1/node/57>

"Exploring The Invisible", *Urotypes: Piss Flowers*. (07-20-2017).  
<https://exploringtheinvisible.com/>

García, Vicente. *Estetoscopio electrónico. (16-11-2010). EPA-Electrónica práctica aplicada*.  
<http://www.diarioelectronicohoy.com/blog/estetoscopio-electronico>

Palacios, Daniel. *Affected by your presence, a rope creates physical 3D waves floating in front of you, hitting your perception as sound and light at once. Supported by MediaLab Madrid. (2016)*.  
<http://danielpalacios.info/waves>

Carbajal, Enrique. *"Sebastian". Fine art + international web gallery. MX*.  
[http://www.sebastianmexico.com/\\_obra/obra.html](http://www.sebastianmexico.com/_obra/obra.html)

Woollaston, Victoria. *The hidden beauty of mobile signals: Psychedelic images reveal the "patchwork blanket" of data that cloaks a city's buildings. Mail Online, Science & Tech. (12-02-2014)*.  
<http://www.dailymail.co.uk/sciencetech/article-2557509/The-hidden-beauty-mobile-signals-Psychedelic-images-reveal-patchwork-blanket-data-cloaks-citys-buildings.html>



ONLINE VIDEOS:

**Standford, Nigel.** *CYMATICS: Science Vs. Music - Nigel Stanford (11-12-2014).* Vimeo.

<https://vimeo.com/111593305>

WORK SPACES:

**Espai Dinamo,** *DIY. Barcelona.*

<http://dinamoespai.info/?lang=ca>

DOCUMENTARIES:

**Salvat, Joan,** (Director), *Sense Ficció: Veritats de Mentida (23-05-2017), Corporació Catalana de Mitjans Audiovisuals.*

<http://www.ccma.cat/tv3/alcarta/especial-sense-ficcio-veritats-de-mentida/veritats-de-mentida/video/5669141/>

**Duran Torrent, Rafel,** (Director), *Sense Ficció: Cyborgs entre nosaltres (27-06-2017), Corporació Catalana de Mitjans Audiovisuals.*

<http://www.ccma.cat/tv3/alcarta/sense-ficcio/ciborgs-entre-nosaltres/video/5675103/>

CONFERENCES:

**Irwin, Terry,** (08-06-2017), *Transition Design,* Barcelona: Centre Artístic Sant Lluç.

**Lladó, Carles,** (11-03-2017), *Ramón Llull,* Barcelona: Universitat Blanquerna.

UNIVERSITY FINAL PROJECTS:

**González Cagigas, David.** *Diseño hardware de un estetoscopio digital con capacidad de detección de afecciones cardíacas.* Universidad de Cantabria. (2015).

<https://es.slideshare.net/DavidGonzlezCagigas/357858-44264723>

## Next bibliography

Dyson, Freeman, *El científico rebelde.*

Eagleman, David, *Incógnito. Las vidas secretas del cerebro.*

Ehrenzweig, Anton, *The Psychoanalysis of Artistic Vision and Hearing: an introduction to a theory of unconscious perception.*

Fontcuberta, Joan, *La furia de las imágenes. Notas sobre la postfotografía.*

Foucault, Michel, *La ética del pensamiento. Para una crítica de lo que somos.*

Fuster, Joaquín M., *Cerebro y libertad. Los conocimientos cerebrales de nuestra capacidad para elegir.*

Haraway, Donna J., *Staying with the Trouble.*

Hope, Jahren, *La memoria secreta de las hojas.*

Moravec, Hans, *El hombre mecánico.*

Miodownik, Mark, *Cosas (y) materiales. La magia de os objetos que nos rodean.*

Pallasmaa, Juhani, *Question of perception. // The embodied Image.*

Saramago, José, *Ensayo sobre la ceguera.*

von Foerster, Heinz, *Observing systems.*

Wilson, Catherine, *The invisible world.*

# Annex

## INTRODUCTION:

**Annex-i (page 11):** [...]“VERBA”: language is the means by which reality and sociality are interwoven; Always our relationship with others is mediated by things or subjects, and always our relationship with things is mediated by others[...]. (Navarro Lluich, Josep-Lluís 2016:261).

## VISION:

**Annex-ii (page 14):** *If you see an eye, it is not because you see it, but because it sees you.* (Navarro Lluich, Josep-Lluís 2016:318).

**Annex-iii (page 15):** *We need to build, so to speak, a complete alternative world, we need a dreamed world in order to discover the features of the real world we believe we inhabit ( a world that may, in fact, be just another dreamed world).* (Feyerabend, Paul 1986:16).

**Annex-iv (page 18):** *Close your eyes for a moment and open them again. If you want, keep them closed until darkness seems perfect, without any trace of image.* (Del Guidice, Daniel 1987:70).

**Annex-v (page 19):** *The sculptures park on the outskirts of the centre is of an approximate size of twelve soccer fields –or fifteen, or five, but much greater than any threshing field. This is the topic, the dimensions, the sensation of vastness, and I do not know if it comes from inside or outside, I mean I do not know if it is conditioned by what I know of the size of the continent where I am now installed, or you feel it, you can note it. The knowledge itself conditions when it comes to perceiving reality; We modify the environment, yes, but to what extent? (...) You change your place to destroy your own perspective and –with the dazzling chunks you have lived through– to make a new one, more kaleidoscopic, one that can capture the light from other angles –you change your eyes, you change your ideas, you change your glasses. You change your skin and, transvestite, when you return, you pass the virus on your immediate surroundings. May the epidemic be spread, may the world resist the irresistible attraction of the navel itself.* (Sales, Marti 2015:46/47).

**Annex-vi (page 19):** *(Skin) is the oldest and most sensitive of our organs, our first means of communication and our most effective protector. [...]. Even the transparent cornea of the eye is covered with a layer of modified skin.* (Pallasmaa, Juhani, 2006:10).

**Annex-vii (page 22):** *No one has truly got an immediate availability to any contact, to project themselves outside of themselves only as a body, without a reserve, even a minimal one, of interiority.* (Del Guidice, Daniel 1987:146).

**Annex-viii (page 23):** [...] *perception cannot be directed in the direction one wants. And in certain cases we can demonstrate that the deviations of “a reliable version of nature” occur in the presence of a detailed knowledge of the object and together with other more realistic representations: [...]* (Feyerabend, Paul 1986:229).

**Annex-ix (page 24):** *We remember through our bodies as much as through our nervous system and our brain.* (Pallasmaa, Juhani, 2006:47).

**Annex-x (page 25):** [...] *the most powerful essence of every human being, the “subjectless subjectivity”.* (Navarro Lluich, Josep-Lluís 2016:295).

**Annex-xi (page 26):** *Next to the images that reality provides to the physical eye, there is a completely different world of images that live or better, come to life, only in our mind and that, although suggested by reality, are entirely transmuted.* (Feyerabend, Paul 1986:222).

**Annex-xii (page 27):** [...] *other salvos brought to the heights stars of white rays from which stars of green rays were being born, very rapid and fulminant lights, to which the nitrates and the chlorates, authentic oxygen stores, probably gave speed of combustion, and thus, the air was becoming light [...]* (Del Guidice, Daniel 1987:163).

**Annex-xiii (page 30):** *both theories and observations can be rejected: theories can be eliminated because they conflict with observations; observations can be*

*eliminated for theoretical reasons. Finally, we have discovered that learning does not go from observation to theory but does always involve both elements. Experience always comes along with theoretical assumptions, not before them, and an experience without theory is as incomprehensible as (presumably) a theory without experience. (Feyerabend, Paul 1986:155).*

**Annex-xiv (page 30):** *Visualization as a whole could look like any thing. (Del Guidice, Daniel 1987:29).*

**Annex-xv (page 31):** *If we throw a jet of light against a glass [...], we cannot predict with certainty the path of a single photon, but we can predict the percentage of photons that will pass to the other side. So, what is light? A wave or a particle? [...] light is something like raindrops [...] and, if the light is of a single colour, all "raindrops" are the same size. (Martinez Ron, Antonio 2016:262).*

**Annex-xvi (page 33):** *The theory of relativity implies at least according to the accepted interpretation of Einstein and Bohr, that there are no inherent properties of the mentioned class, that shapes, masses, time intervals, are relationships that occur between physical objects and coordinate systems on the other. The theory of relativity provides, moreover, new principles for the constitution of mechanical facts. (Feyerabend, Paul 1986:271).*

**Annex-xvii (page 38):** *It is likely that if we photograph it with an infrared film, it offers us a different image from the one we have of it at sunset or after a storm. The more we know about the same thing, the more we appreciate it and the better we can understand a reality that previously appeared to us under a single appearance. (Munari, Bruno 1985:58).*

**Annex-xviii (page 39):** *The post-phenomenon of the perceptive adaptation of the place, in certain circumstances, the so-called post-effects. The post-effect refers to changes in judgment about a stimulus as a consequence of prolonged exposure to another immediately preceding stimulus. (Aznar Casanova, J. Antonio, Psicología de la percepción visual, "Universitat Barcelona").*

**Annex-xix (page 40):** *Is it reasonable to expect conceptual and perceptual changes of this kind to occur only in childhood? Or, indeed, is it not more realistic to suppose that fundamental changes are still possible and should be stimulated –changes that imply incommensurability– unless we are forever excluded from what could be a higher stage of knowledge and consciousness? (Feyerabend, Paul 1986:220).*

**Annex-xx (page 41):** *When you want to think clearly, the sharpness of the vision must be suppressed so that the thoughts travel with an unfocused look and an absent mind. Homogeneous bright light paralyzes imagination, just as the homogenization of space weakens the experience of being and erases sense of place. The human eye is better tuned for twilight than for daytime radiant light. Perception, memory and imagination are in constant interaction: the domain of presence merges into images of memory and fantasy. (Pallasmaa, Juhani, 2006:48/61).*

#### COMMUNICATION:

**Annex-xxi (page 47):** *[...]communication would allow to integrate the thousands of tracks and valuable fragments that were scattered in so many books and materials.*

*[...] a good theoretical understanding of what language is, can offer people a better and greater capacity to invent and/or (re)generate meaning in their lives. (Navarro Lluç, Josep-Lluís 2016:18).*

**Annex-xxii (page 47):** *In cases of necessity, he had built truly real gardens with the simple juxtaposition of names and colours, whose acceptability he later verified, and this had been one of his ways of knowing. (Del Guidice, Daniel 1987:31).*

**Annex-xxiii (page 48):** *A good theoretical introduction to language and languages can help us to become fully aware and responsible for our lives, to design them better. (Navarro Lluç, Josep-Lluís 2016:21).*

**Annex-xxiv (page 50):** [...] languages, as well as the types of reactions they imply, are not mere instruments for describing events, [...] but they are also co-formers of events. (Feyerabend, Paul 1986:214).

**Annex-xxv (page 52):** Error and deception are constitutives of all what is human and social. Deception is the cause of the error, it is "to make make a mistake"; And the two basic types of deception (the secret and the lie) correspond symmetrically with the two basic types of error (blindness and illusion). (Navarro Lluch, Josep-Lluís 2016:66).

**Annex-xxvi (page 55):** No theory agrees with all the facts of its domain. The facts are constituted by older ideologies, and the clash between facts and theories can be proof of progress. Such a shock, moreover, constitutes a first step in the attempt to discover principles implicit in very common and familiar observational notions. (Feyerabend, Paul 1986:38).

**Annex-xxvii (page 59):** Language is the instrument or vehicle of thought, of consciousness, of memory, of access to wisdom, to knowledge and even to what is beyond itself and that overcomes what is verbalizable [...] (Navarro Lluch, Josep-Lluís 2016:83-98).

**Annex-xxviii (page 59):** [...] Roger Penrose and Stuart Hameroff suggested that human consciousness results from superpositions of the quantum states of protein fibres in neurons called microtubules. They assume that the wave function collapses into these states, which would allow the brain to perform a kind of quantum computation that gives answers to questions that would not be likely from the formal rules of logic. (Clegg, Brian, 2015:150).

**Annex-xxix (page 60):** We do not have to cling to the words, he said, because we will be confused: neither the words nor the things they point to have their own existence, they are empty in essence. [...]; On the one hand, everything is language, but at the same time, silence can express the last reality. (Navarro Lluch, Josep-Lluís 2016:125).

**Annex-xxx (page 62):** [...] it is that power with which an animal manifests to another animal its conception. (Navarro Lluch, Josep-Lluís 2016:136).

**Annex-xxxi (page 63):** Our mind is not limited to the brain, but it emits prolongations that come into contact with what surrounds us. That is why we talk of "extended mind": what we perceive is not only in our head but also where it seems to be. Subject and object are not separated but connected, and the observer is part of the experiment. (Navarro Lluch, Josep-Lluís 2016:141).

**Annex-xxxii (page 63):** The final objective can, therefore, be for the entire inner world to be exposed as visible in the outside world. (Navarro Lluch, Josep-Lluís 2016:143).

**Annex-xxxiii (page 64):** Using language is a realisation of the same class as our integration of visual clues to perceive a face (or any other image)[...]. (Navarro Lluch, Josep-Lluís 2016:231).

**Annex-xxxiv (page 65):** So the significance would be the opposite of concealment. (Navarro Lluch, Josep-Lluís 2016:217).

**Annex-xxxv (page 66):** We now understand how essential it is to learn to speak in enigma, and what a disastrous effect it must have, the urgency of instant clarity, for our understanding. (Feyerabend, Paul 1986:250-251).

**Annex-xxxvi (page 67):** [...] what we are told is below what we are made to see (Deleuze, Gilles 1987:5).

**Annex-xxxvii (page 67):** From one of these, a rescue flare lifted up to the sky, as if light could be answered with light. (Del Guidice, Daniel 1987:157).

**Annex-xxxviii (page 68):** If you can read the first words, the brain will decipher the others: One day[...]  
One summer day, I was on the beach observing[...]  
Vilayanur S. Ramachandran and Diane Rogers-Ramachandran, researchers at the

Centre for Brain and Cognition at the University of San Diego, stated that when an object is partly hidden, the brain reconstructs it with great skill and creates a *visuale whole*. (Fernandez-Vidal, Sonia 2013:78-64).

#### EXPERIMENT:

**Annex-xxxix (page 72):** *We researchers have to stay alert: variables are everywhere and they are capital for the result of the experiment.* (Sales, Martí 2015:77).

**Annex-xl (page 76):** *The eye does not find the altimeter where it should, it looks for it, it sees it, I mean that it sees the instrument, while it usually takes note automatically only of numbers and guides; feet and hands feel the consistency of the controls, they notice the matter of which they are made, these controls that they usually handle without feeling them.* (Del Guidice, Daniel 1987:18).

**Annex-xLi (page 76):** *Relationships depend on the limits of the conversations. [...] And there is no doubt that moods, constitutive of human existence, predispose to action because they are like the lenses through which we look at the world.* (Navarro Lluch, Josep-Lluís 2016:20).

**Annex-xLii (page 78):** *An icon has the kind of being that belongs to the past experience [...]. An indication has the being of the present experience. The being of a symbol consists in the real fact that something will be experienced if certain conditions are met.* (Navarro Lluch, Josep-Lluís 2016:276).

**Annex-xLiii (page 78):** *Often theory and reality are confused as if the first one was a mirror or a complete portrait of true reality.*(Navarro Lluch, Josep-Lluís 2016:56).

**Annex-xLIV (page 80):** *It takes a lot of will and a lot of energy to see, before and after, because what is produced so that it can be seen is not seen while it happens: it is seen first as intention, it is seen afterwards as a result.* (Del Guidice, Daniel 1987:52).

**Annex-xlv (page 81):** *[...] language as an instrument of thought, knowledge and science.* (Navarro Lluch, Josep-Lluís 2016:104).

**Annex-xlvi (page 85):** *[...] movements were just the background of thoughts* (Del Guidice, Daniel 1987:45).

**Annex-xlvii (page 85):** *Yes, perhaps what I like most about the things you are dealing with is that an idea or a model are never completely abandoned; perhaps because they are not real, but probable. Perhaps probability is a great form of respect, close to what happens to the extent of coinciding with it, and yet separated.* (Del Guidice, Daniel 1987:115).

**Annex-xlviii (page 91):** *[...] the observer is separated from the world's laws by the special physical conditions of his observation platform.* (Feyerabend, Paul 1986:138).

**Annex-xlix (page 94):** *We are made to live in an invented dream-like world .*(Pallasmaa, Juhani, 2006:33).

**Annex-L (page 94):** *We feel pleasure and protection when the body discovers its resonance in space.* (Pallasmaa, Juhani, 2006:57).

**Annex-Li (page 95):** *Knowledge, thus conceived, is not obtained by grasping an essence that lies beyond the reports that the senses offer us, but by: 1) placing the observer in the correct position with reference to the object (process, added), inserting it into the appropriate place of the complex model that constitutes the world, and 2) adding the elements that are observed in these circumstances. Knowledge is the result of a complex inspection carried out from an advantageous position.* (Feyerabend, Paul 1986:239-240).

#### METHODOLOGY:

**Annex-Lii (page 98):** *Newton had his doubts about the corpuscular nature of light, as he also noticed the phenomenon we now call interference. However,*

and despite not being completely convinced, finally opted for the option that they were particles. More certain, however, was the Newtonian faithful who succeeded him. His corpuscular theory of light was accepted by the scientific community for years. In fact, in presenting his theory, Young encountered resistance from the vast majority of his English colleagues. (Fernandez-Vidal, Sonia 2013:81).

**Annex-Liii (page 100):** *There are genius intuitions that can take decades, perhaps centuries, to be demonstrated, but the human spirit has come where it is thanks to its ability to plunge into the abysses of what can hardly be named.* (Fernandez-Vidal, Sonia 2013:119).

**Annex-Liv (page 103):** *[...] the world we want to explore is a largely unknown entity. We must therefore keep our options open and not restrict them in advance. [...] the cultivation of individuality that is the only thing that produces, or can produce, well-developed human beings[...].* (Feyerabend, Paul 1986:4).

**Annex-Lv (page 104):** *“(An investigation begins with a problem, Popper says). First, we have an idea, or either a problem, afterwards we act, that is, we talk or build or destroy.* (Feyerabend, Paul 1986:10).

**Annex-Lvi (page 105):** *[...] success can not be considered in any way as a sign of truth and correspondence with nature. [...], the suspicion arises that this supposed success is due to the fact that the theory, extending beyond its point of departure, has become a rigid ideology. Its “success” is completely artificial.* (Feyerabend, Paul 1986:27).

**Annex-Lvii (page 106):** *It is possible to preserve what we might call the freedom of artistic creation and to take full advantage of it, not only as an escape valve but as a necessary means to discover, and perhaps to change the features of the world in which we live.* (Feyerabend, Paul 1986:37).

**Annex-Lviii (page 107):** *On the contrary, such an impression of strangeness reveals that natural interpretations are working, and this is a first step towards a discovery* (Feyerabend, Paul 1986:61).

**Annex-Lix (page 108):** *Quantum theory can be adaptable to a large number of difficulties. It is an open theory in the sense that apparent inadequacies can be explained ad hoc, [...]* (Feyerabend, Paul 1986:26).

**Annex-Lx (page 108):** *The issue of “ad hoc” creation of a specific quantum conceptual system results in fact in the discussion on whether or not to construct terms of new significance, not rooted in the field of existing meanings, since these are contaminated with connotations from ordinary experience and intuition. In short, it is a matter of knowing, as Felix Bloch told us, if we can aspire to a true language of new creation.* (Mataix, Carmen. Rivadulla, Andrés, 2002:146).

**Annex-Lxi (page 109):** *There is no single rule that continues to be valid in all circumstances and there is no single instance that can always be appealed.* (Feyerabend, Paul 1986:166).

**Annex-Lxii (page 109):** *All (scientific) knowledge theories arise from the question: What is knowledge, and how can it be stopped? No one accepts that there may be various forms of knowledge and that it may be necessary to make a choice.* (Feyerabend, Paul 1986:203).

**Annex-Lxiii (page 111):** *It’s all good,” does not mean I’m going to read all the articles that have been written [...]. It means that I make the selection in a very individual way because I can not torment myself by reading things that do not interest me, and my interests change from week to week and even from day to day.* (Feyerabend, Paul 1986:206).

**Annex-Lxiv (page 112):** *In moving from the field study to his own conceptions and his own language, for example English, the anthropologist often proves that a direct translation is impossible and that his points of view and the points of view of the culture to which he belongs, are incommensurable with the “primitive” ideas he has begun to understand (or there may be coincidence in some parts and incommensurability in others).* (Feyerabend, Paul 1986:268).

**Annex-Lxv (page 114):** *In a democracy, “reason” has as much right to express itself and to be heard as “unreason”, especially in view of the fact that the “rea-*



son" of one man is madness for the other. (Feyerabend, Paul 1986:209).

Annex-Lxvi (page 114): [...] *the researcher should not try to get a better understanding of the tribe's ideas by comparing them with ideas he already knows, or that seem to him to be more understandable or more precise. In no case should he attempt a logical reconstruction. Such a course would chain him to the known, to what is preferred by certain groups, and would forever prevent him from grasping the unknown ideology he is examining.* (Feyerabend, Paul 1986:244).

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