Faculdade de Design,
Tecnologia e Comunicação
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LOGO GENERATION THROUGH ARTIFICIAL INTELLIGENCE

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Dissertação apresentado ao IADE – Universidade Europeia, para cumprimento dos requisitos necessários à obtenção do grau de Mestre em Design e Cultura Visual realizada sob a orientação científica do Professor Doutor Carlos Rosa do IADE – Faculdade de Design Tecnologia e Comunicação da Universidade Europeia e Professor Doutor Bruno Silva, do IADE – Faculdade de Design Tecnologia e Comunicação da Universidade Europeia e do Instituto de Telecomunicações, NetGNA lab, na Universidade da Beira Interior, Covilhã.

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palavras-chave Inteligência Artificial; Design; Marcas; Logos.

resumo

Nos últimos anos, muito se tem falado sobre a possibilidade da inteligência artificial se tornar uma aliada do designer, bem como sobre a possibilidade de, no futuro, substituir o designer na identidade visual das marcas. Este estudo tem como objetivo analisar e compreender quais os impactos que os avanços da tecnologia e mais precisamente da inteligência artificial podem contribuir para o desenvolvimento do design de marcas. Foi realizada uma revisão de literatura (em AI e design), analise de estudos feitos anteriormente e entrevistas, para assim criar uma proposta conceptual de um modelo de criação de logos através de inteligência artificial.

Concluiu-se que apesar de parecer que a inteligência artificial poderá estar perto de criar logos, na realidade ainda se encontra longe de tal objetivo. Apesar disso, o estudo da inteligência artificial em design pode mesmo ajudar os designers, com ferramentas novas que permitirão este trabalhar melhor, especialmente na parte de formalização de ideias e pesquisa e a solidificarem a disciplina teoricamente.

Keywords Artificial intelligence; Design; Brands; Logos.

abstract

In recent years, much has been said about the possibility of artificial intelligence becoming an ally of the designer, as well as the possibility that in the future it will replace the designer in brand design. This study purposes to analyze and understand what impacts the advances in technology and more precisely artificial intelligence can contribute to the development of brand design. It was made a literature review (in AI and design), analysis of previous studies and interviews, in order to create a conceptual proposal for a logo creation model through artificial intelligence.

It was concluded that although it appears that artificial intelligence could be close to creating logos, in reality is still far from that goal. Despite this, the study of artificial intelligence in design can even help designers, with new tools that will allow them to work better, especially in terms of formalizing ideas and research and solidifying the discipline theoretically.

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INTRODUCTION

From the moment we wake up until the moment we go to bed, we see a lot of logos everywhere. From our mobile phone, our clothes, the ads on television, and the mupis we go through during the day. It is almost impossible for us to spend a day of our lives without seeing brands, and because we are so used to them, we do not even wonder how many times we see them and why they are so present in our daily lives. Brands are constantly struggling to stand out from each other, as they must capture the attention of consumers every day. Brand design is, because of this, one of the most sought-after branches of design. The rise of the brands and this need to communicate more and faster is deeply connected with the rise of new technologies, like the computer and television as also, in turn, the internet. This didn't just cause pressure to the brands but also to the designer that now have to work with more stressed clients and be aware of the fact that the stage is bigger, and the audience is always looking.

The design discipline has always evolved a lot over the years, always hand in hand with the evolution of technology. So, the great steps that technology is taking in recent years makes us wonder what the next big step for design is. Massimo Vignelli, in 1983, asked us not to forget our origins as designers, to discuss opinions, and look to the past to find out what the future might be. Evolution only happens when we perceive and interpret the past so that we know the next steps to take. Without a theoretical basis, we will never be able to take the right steps towards evolution. "The theoretical implications of new technologies for the way we conceive and express the printed word and the graphic image are a tremendous field of exploration which is still to be tapped. Again, the lack of appropriate professional publications deprives all of us the stimulation that could emerge from dialogue" (Vignelli, 1983). In 1983, Vignelli already suggested that we start looking at technology and writing about its implications for design, almost forty years have passed and not much has changed. Right now, there are some things written but not enough to evolve. In the relation between brand design and artificial intelligence, there

are some papers from the perspective of technology-based fields but any from the perspective of designers.

Knowing that brand design has become one of the most common and sought-after types of design, this study aims to explore the union between brand design with artificial intelligence, hoping not only to contribute to the development of brand design but also doing so see if it's a way to understand natural intelligence and the complexity of the design activity.

This document is organized into five chapters: Chapter 1- Theoretical Framework; Chapter 2- Methodology; Chapter 3- Conceptual Proposal; Chapter 4- New Methods of Design: Discussion; Chapter 5- Future Work.

Chapter 1, the research is divided into three parts: the first and second part is more about design and the last one about technology in general and artificial intelligence in concrete. In the first part, the research carried out aims to demonstrate that technology and design have always gone hand in hand and consequently the way we deal with visual communication, and thus also changing the human communications that have been adapting to the various versions of the world. This first part of the research serves to integrate the study in today's society and to try to understand if we can learn something from the past. Also, concepts were defined, between logo, brand, and visual identity, and also about all the elements that form a logo. The second part aims to try to understand what are the methods used by designers, to understand what they have in common and what are their limitations and problems. In the third part, the research tries to bridge the gap between technology and graphic design, and concepts such as artificial intelligence, machine learning, deep learning, and neural networks are defined.

Chapter 2, the methods used in this research are presented as well as which are the research questions and research objectives. Besides, the data collection methods are mentioned, and an analysis of the interviews is made.

Chapter 3 presents an analysis of the data collected in the theoretical framework. A conceptual proposal for a logo generation model through artificial neural networks is presented, and also a logo characterization model.

Chapter 4 hypotheses about the possible future of design methods are made based on what the research reveals. Interpreting the information in a way that is possible to try to answer the research questions.

Chapter 5 presents the conclusions of the research, the limitations that appeared in the development of the research, and recommendations for future work.

CHAPTER 1 - THEORETICAL FRAMEWORK

Summary

The first chapter consists of the research considered relevant to the realization of the project. The research is divided between two major themes, design and technology until the union of the two. It covers topics such as design methods, origins of brands, logos and their elements, artificial intelligence, machine learning, among others.

1.1 HISTORICAL FRAMEWORK

The idea behind brands is not as recent as we might think. There are marks, symbols, and signs from the time people sold or traded cattle and other food products they created. Even during this time that there was no brand as it is today, people needed something to distinguish themselves from others so that the consumer would know who the producer was and sometimes just for the producer to mark his property.

The origin of the brand is linked to the will that man had to communicate. Even as far back as the origins of humankind, we always have this will to communicate what we see and our ideas. Due to this, communication arose only because there was a desire to recreate and share the moments of everyday life. In the beginning, the written language was images, pictograms, and phonetic units until later the alphabet emerged. Even so, the visual language continues to grow steadily without losing its importance and still gaining more and more these days. Dondis A. Donis said that "Visual information is the oldest record in human history. Cave paintings represent the earliest preserved record of the world as it could be seen about thirty thousand years ago."[1] (1991, p.7), so it can be considered that visual information was the earliest forms of communication and in the beginning, the symbols that the human being painted was just what he saw, as if it were

[1] "a informação visual é o mais antigo registo da história humana. As pinturas das cavernas representam o relato mais antigo que se preservou sobre o mundo tal como ele podia ser visto há cerca de trinta mil anos."(Dondis, 1991, p.7)

a report of his daily life. Even after an alphabet and new forms of communication already exist, visual information was still quite important especially as human beings felt the need to mark/differentiate their identity and property. This differentiation was visible in Egypt and Greece through the early marking of animals, the carpets of nomadic people, and through heraldry to differentiate families and lineages (Raposo, 2008).

The invention of the Gutenberg printing press by Johannes Gutenberg, in Germany in 1448, was what facilitated the desire of humans to communicate their information so that it would reach more people, faster. Soon advertising increased with this new technology. This facilitated the distribution and printing of information that allowed to advertise the goods to be sold (Landa, 2006).

It was in the eighteenth century, in the United States, England, Germany, and France, that the first advertising initiatives appeared by poster and then by advertisement, flyer, press, and mail. One of the factors that helped in the development of brands was the media, as they increased brand awareness through rapid diffusion. Landa says that:

> "A convergence of modern factors- such as the invention of photography and typewriters, a rising literacy rate, the rise of mass media, the increase in railways, the telephone, and better postal systems- would all greatly facilitate the success of brands." (2006, p. xxii)

In the industrial revolution, mass production and marketing began to exist, which increased the need for product and business identification. Not only did the industrial revolution increase the need for visual identities, but it also reinforced their importance for product success. So there was so much choice for the consumer that it was almost mandatory to use brands to make it easier to distinguish products from each other (Landa, 2006).

In the early eighteenth century, product advertisements appeared repeatedly in newspapers and began to become so common that producers and consumers began to

realize the importance of brands. Thus, arose the copyright laws in England for the first time, which set the rules so there aren't two brands equal.

Despite this, between the XVIII and XIX centuries, it was the products that were advertised and not the brands. Brands were still used only as a seal or signature of the seller and were not very important in the consumer's purchase decision. It was William Hesketh Lever, founder of Lever (a home appliance company), which in England from 1880 to 1900 decided to create a trademark he called Sunlight Soap. This one stood out from the others, not only for having a memorable name and a strong advertising campaign but also for its unique packaging. Since ancient times, the products were sold separately, the fact that the soap was in bars in a package with a printed mark, differentiated it from others in the market that was sold in uneven bars. So, Lever started the era of promoting brands rather than products. Lever's strategy was a success, the brand became known throughout England and the sales went up. From there Lever created more brands and more people realized that the brand was important to the business (Raposo, 2008).

Fig. 1 Sunlight Soap Packaging (1884)

In the XIX century, the graphic design had a lot of detail, all very realistic work, and this also applied to the brands. Figure 1 shows an example of the realistic and very detailed design work that was applied to the Sunlight Soap. Raposo says that:

> "In general, the marks of the nineteenth century were a mixture of illustration and text where illustration was the mark or vice-versa, following (at the formal level) the realistic figurative taste. When packaging or label was successful, it often became the company's brand, spreading across the entire product range."[2] (2008, p. 74)

In a way, we can say that brands were almost artistic back then. Graphic design was almost "an extension of the expressiveness of the Fine Arts, pressed into commercial or scientific service" (Buchanan, 1995, p. 9). The brand name as well as its graphic design became very important to stimulate sales and make the brand desirable. The brand name would have to be something that made people's lives easier in a sense in which facilitated the process of choosing products but also a name that people recognized and made the brand socially acceptable (Landa, 2006).

In the twentieth century, Gestalt's psychology of visual perception (Gestalt meaning "global form") appeared in Germany, which aimed to study the way the mind deals with the complexity of visual communication. Thus, Gestalt psychology has created several laws that relate to each other. Some examples are the law of continuity (if there are only points on a sheet of paper, in an organized way our brain will join the dots and we will see a line instead of mere dots, the arrangement of the elements on the sheet is what gives it the form) and the law of similarity (graphic elements tend to group if they are similar, this can happen because the elements are all the same color or shape) (Mesquita, 2014).

The laws defined by Gestalt psychology are still applied today, and it was the beginning for design started to separate from art and become more closely linked to the sciences.

> "The movement away from esthetics and stylistic innovation as determinants of quality started when investigations related to perceptual psychology, particularly the

[2]"Em geral, as marcas do século XIX, eram um misto de ilustração e texto onde a ilustração era a marca ou vice-versa, seguindo (a nível formal) o gosto realista figurativo. Quando uma embalagem ou um rótulo tinha sucesso, convertia-se com frequência na marca da empresa, generalizando-se a toda a gama de produtos." (Raposo, 2008, p.74)

> Gestalt school, provided some theoretical concepts for visual fundamentals courses in art schools. These concepts replaced intuitive rules for what was called composition. This involved a rationalization of part of the design process and was parallel to developments in the study of legibility. The studies in legibility were the expression of an interest that went beyond the esthetic structure of the visual field and stepped into a concern for communication efficiency." (Frascara, 1995, p. 49)

The first part of the twentieth century was marked by several discussions that consisted of separating design from art or not. The visual arts always have been between fine and applied arts, and "At any given moment in history, the definition shifts and changes, although the most constant differentiating factors are often utility and aesthetics"[3] (Dondis, 1991, p. 7). William Morris led a movement called Arts & Crafts, from 1880 to 1920, which considered that fine art and applied arts should not be separated. The movement was born out of concern over the rise of industrialization in England that affected design and craftsman. In 1908 Adolf Loos wrote "Ornament and Crime," which unlike William Morris, argued that ornaments should not be placed on objects designed to be functional. These were just two discussions that happen at the beginning of the century that divided opinions.

In 1919, Walter Gropius founded a school named Bauhaus, which means "the school of building". Gropius's goal was for the Bauhaus to be part of a network that together with other schools were fighting for reform. In 1910, Gropius joined a reform debate forum in which integrated architects, artists, and businessmen and was called the Deutscher Werkbund. This forum "sought to balance economic, artistic, and moral goals and to reconcile capitalism and culture"[4] (Droste, 2006). It was here that Gropius gained much of his knowledge with the media to manage Bauhaus effectively. Gropius believed that there had to be a collaboration between artists and artisans and preparing the student

[3] "Em qualquer momento da história, a definição se desloca e modifica, embora os mais constantes fatores de diferenciação costumem ser a utilidade e a estética." (Dondis, 1991, p. 7)

[4] "procurava equilibrar objectivos económicos, artísticos e morais e reconciliar o capitalismo e a cultura." (Droste, 2006)

to work in the real world required, the student to learn not so much the history but the crafts and technologies. Thus, the Bauhaus formation included technique and form, Gropius "favored modern technology and viewed art as a means to reconcile man with it"[5] (Droste, 2006). Bauhaus's model of teaching began, initially with a preliminary course that was compulsory for all students, which Josef Albers described as "craft instruction". After this, it was followed by three years in a Bauhaus workshop (there were several workshops, such as glass, weaving and metals, etc.), and only when this period was over could they study architecture. From 1927, besides architecture there were three more courses in advertising, performing arts, and art. Thus "Gropius Bauhaus was a reformed school of arts and crafts"[6] (Droste, 2006). In 1928, Hannes Meyer became director, and some changes were made to the teaching model, and it was under his direction that Bauhaus began to train not only architects but also designers. Architecture became the main discipline again when, in 1930, Mies Van Der Rohe abolished Meyer's learning system. Meyer had a more science-oriented vision and a concern for the role of art in the design process while, Mies reintroduced history into the teaching of architecture, and believed that architecture should use industry and modern technologies.

Most of the designs created in the Bauhaus workshops were all elementary shapes and primary colors, and in 1922 Gropius formulates rules for workshop designs: all had to be made up of simple pieces to facilitate their industrial production. In 1929, the term "functionalism" emerged linked to the forms applied by Bauhaus in the Gropius period, where the function of the object is the main feature to take into account, in other words, the form was defined by the function of the object.

Bauhaus eventually closed in 1933 due to political pressure, but it was still reflected in the media and a new term emerged in newspapers and professional publications "The Bauhaus Style". Even having lasted a short time and has gone through immense changes over time (three different directors with different ideas and three different locations) the

[5] "favorecia a tecnologia moderna e a ver a arte como um meio para reconciliar o homem com ela." (Droste, 2006)

"Bauhaus style" is still a reference both in architecture, product design, interior, and graphic.

In 1907 Peter Behrens and Otto Neurath were hired by AEG, a German household electrical products firm.

> "This work resulted in a complete program consisting of building projects, factories, workshops, shops, products, industrial lamps, tea services… and created brands, logos, posters, flyers, advertisements, catalogs, etc… not only contributing for consistent communication, but also for strong company culture."[7] (Raposo, 2008)

They not only designed a logo as well as all that is related to the company, from the buildings to the advertising campaigns, for it "is widely regarded as being the first major corporate identity commission." (Rivers, 2003, p. 6).

It was then, in the twentieth century, that the expansion of brands for corporate identity took place and it was also the century in which more was done in this area. The emergence of two major media also helped in the expansion. Radio and later television advertised, products and brands sponsored radio and television programs, giving the viewer or listener the idea that this brand not only sold the product but also paid for the entertainment, and this "paved the way for people to embrace the notion that brands could bring them happiness, both directly and indirectly" (Landa, 2006).

In the period of World War II (between 1939-1945), there was almost no evolution of design in Europe. Only in Switzerland, which was out of the conflict, did they continue to work normally. The symbols changed at this point, moving from the first phase of figurative illustrations to simplified illustrations, where contrast and the constant line of thickness gained relevance. In a second phase, dominated abstraction and geometry. Over time, brands changed according to the preferences of the time, which often required simplification. (Raposo, 2008)

[7] "Este trabalho resultou num programa completo constituído por projectos de edifícios, fabricas, oficinas, estabelecimentos comerciais, produtos, lâmpadas industriais, serviços de chá… e criaram marcas, logótipos, cartazes, folhetos, anúncios publicitários, catálogos, etc… contribuindo, não só para uma comunicação coerente, mas também para uma forte cultura de empresa." (Raposo, 2008)

The School of Form in Ulm, founded by Inge Scholl, Olt Aicher, and Max Bill (1953-1968), was a postwar successor to the Bauhaus. In the program there were disciplines such as mathematics, logic, and sociology, pushing design away from art. Max Bill started as school director in 1955, but due to conflicts with Maldonado, he asked for resignation from the position of director. Maldonado felt that aesthetics is not everything and that there are several factors beyond that, while Bill saw design as art, with the designer aiming to design beautiful objects.

After Bill leaves in 1957, Gugelot, Maldonado, and Aicher take over. Raposo says that:

> "The school of Ulm developed in the environment that gave rise to the International Typographic Style which, in general, proposed the clarity and order of the message and signs, considering design as an activity of social and necessary utility, rejecting personal expression and eccentric solutions. The designer was seen as a strategist at the service of companies and whose mission would be to optimize the message without giving it personal data or forms without communicational or functional purpose."[8] (2008 , p. 82)

In 1962 becomes director Otl Aicher, who aimed to strike a balance between science and design. Although Aicher thought the design process to be rational, he thought that the concept was never born of reason and should not be based on facts (Raposo, 2008).

Meanwhile, with the end of the war, consumerism increased and the market was saturated, which allowed design to prove to be important at the socioeconomic level (Raposo, 2008). World War II brought several advances in technology and after the war, the economy was expanding and there was optimism for the future. The more companies grew, the greater the need to stand out among all the others. Thus, the design began to

[8] "A escola de Ulm desenvolveu-se no ambiente que originou o Estilo Tipográfico Internacional que, em traços gerais, propunha a clareza e ordem da mensagem e dos signos, considerando o design como actividade de utilidade social e necessária, rejeitando a expressão pessoal e as soluções excêntricas. O designer era encarado como um estratega ao serviço das empresas e cuja missão seria optimizar a mensagem sem lhe atribuir dados pessoais ou formas sem objectivo comunicacional ou funcional." (Raposo, 2008, p. 82)

grow because through it companies could increase their reputation. Like this, the world entered the information age. Large companies needed complex branding systems to manage all the information that was needed to communicate with the consumer. This "design systems can also create resonance, helping express and define the very nature of the large organization or event" (Meggs & Purvis, 2012, p. 435).

The United States escaped World War II without being devastated, and instead, there was an expansion of the industry, and many companies were developing products and services through marketing. It was in the postwar period with the booming industry that the visual image of a company gained another meaning. A design system was created that unified the whole image of a company. Between the 1950s and 1960s corporate identity was one of the most important design activities, and some designers just did that.

> "The objective of graphic designers was to produce clear communications. Only designers in the advertising business were concerned with other elements in the performance of their designs: namely, sales. At least as far back as the 1950s, it became clear that the client's accounts depended on the client' success and that advertising design was a contributing factor to the success of the business. The concern for sales and persuasion in the advertising field led to the constitution of multidisciplinary teams of managers, writers, sociologists, psychologists, and designers who contributed establishment of marketing as an indispensable component of the advertising fields." (Frascara, 1995, p. 50)

The work done in Switzerland during the war spread to other countries such as the United States, which later began to explore abstract symbols as trademarks. Chermayeff & Geismar Associates created a logo for the Chase Manhattan Bank of New York (1960) that was just an abstract symbol. The logo was successful, and this proved that an abstract symbol can function as the visual identity of a large company. A sans serif font has been designed for use with the abstract symbol. The bank's design and communication needs made it necessary to select an expanded letter. The use of this font launched a trend in the early 1960s, where the symbols of large companies were simplified and geometric to

represent modernity and technology. These concepts attributed rational values and objectivity to large companies (Tyler, 1995). So, the Chase Manhattan Bank of New York logo became a kind of prototype for the others to come.

One of the most important factors is that large companies could with just a graphic image reveal who they were and what their goals were.

> "A cohesive image created by a unified, consistent, professional visual communication program was the goal. Corporations wanted an advantageous visual image that could be used to represent the huge entity that is a corporation. Visual identity or corporate identity programs could give a corporation a "look", a style, an image, a personality." (Landa, 2006, p. xxiii)

Unimark was an international design company founded in Chicago in 1965 by a group of partners including Ralph Eckerstrom, James K. Fogleman, and Massimo Vignelli. Unimark believed that there was no individualistic design, instead they believed that design could be a system, a basic structure. For this, they used the grid as a tool to make standardized communication designs for various companies. Helvetica was the font chosen for all these visual communications, as it was considered the most readable of all fonts. The main idea was that graphic design can be something also mass-produced, strictly functional. Unimark eventually closed due to the recession in the early '70s, but its ideas continued to be applied by the designers they trained and their founders.

Ann C. Tyler says that:

> "Geometric simplification of form continues to be applied to logos, but the 1980s also saw the reintroduction of more formally complex shapes and "naive" representation. The icons began to take on some of the qualities of folk art imagery by referencing individual (handmade) characteristics." (1995, p. 109)

From the 1980s there is a liberation of the simple forms and the rebirth of the complex. Geometric shapes, quite popular until now, distanced people from the company, being rigid shapes. One of the characteristics of the complexity of shapes is that it makes the logo something that the audience can identify with on an emotional level, "The quotidian quality of the logos represents the company not as an anonymous institution but rather as an organization comprised of individuals like the audience"(Tyler, 1995, p. 109).

In the late twentieth and early twenty-first centuries, further advances in technology and the media emerged, and what is today one of the major media, the computer. The full potential of this new technology has once again opened more doors for design. An idea by Frank Olinsky and Pat Gorman, allied with new technology, makes in 1981 the first logo that changes color, material, shape, and decoration, and is still dimensional. In figure 2, are presented different forms of the MTV logo, a television channel, which became in history as one of the best known and as the first identity that was animated.

Fig. 2 MTV logo by Frank Olinsky and Pat Gorman in 1981

Within a few years, brands have grown to be a commercial phenomenon. In the late twentieth and early twenty-first centuries, companies began to focus more on services than on a specific product.

> "In the 90s, the service sector, driven by a combination of information technology and deregulation, experienced explosive growth. All statistics in any developed country show a relative decline in production and a growth in services since the mid-1970s"(Olins, 2009, p. 13).

As businesses focus more on the services they offer, this will involve the whole customer experience with the brand, from customer service to the final purpose.

1.2 LOGO

According to Charlotte Rivers, there are five types of logos: those consisting only of text; images/symbols only; those containing text and symbols; abbreviations; and abbreviations with images (Rivers, 2008). The term logo is used to refer to all types and when used does not define whether it is made up of only symbols, only text, or both. Alina Wheeler agrees with Rivers that there are five types of logos but defines the typology better. For Wheeler, these are wordmarks (only text); letterforms (one or more letterform that acts as a mnemonic device); emblems (when name and image cannot separate); pictorial marks (only symbols); abstract/symbolic marks (the abstract symbol) (Wheeler, 2009). For Robert Landa, the typology is wordmarks (only text); lettermark (a type of logo using the initials of the brand name); symbol mark (it is divided into three, which can be: pictorial symbol mark which is a representational image that symbolizes the brand; abstract symbol mark which is an emphasis on the intrinsic form; nonrepresentational visual which is a nonpictorial design that symbolizes the brand and does not relate to an identifiable object or person); combination mark (words and symbols) (Landa, 2006). There are slight differences in typologies associated with the word logo, depending on author to author, and the word itself can also be called brandmark, identifier, logomark, or trademark. For an easier understanding, this study will use the typology of Robert Landa.

1.2.1 WORDMARKS OR LOGOTYPE

The origin of the word logotype comes from the times when Gutenberg wanted to imitate the sequence of handwriting letters. He called logotypes for the use of letters linked in a single print body. Currently, the logo is an abbreviation, acronym, or the name of a company, product, or service (Raposo, 2008).

The logotype consists only of words that are placed in a thoughtful way to communicate the characteristics of the product, service, or company they represent (fig. 3). This communication is made by carefully choosing a font taking into account its various characteristics, and if necessary modifying the font or its overall design (Wheeler, 2009).

Fig. 3 Wordmarks examples: Google and Ikea

1.2.2 LETTERMARK

Typography is also used, but only the initials of the product, company, or service name (fig. 4). There may be graphic elements created from the letters or shapes and lines complementary to the initials.

Fig. 4 Lettermark examples: IBM (International Business Machines Corporation) and UPS (United Parcel Service)

1.2.3 SYMBOL MARK

A symbol that represents the brand without the need to use typography. It is divided into three types: pictorial symbol mark; abstract symbol mark; nonrepresentational visual (fig. 5). The pictorial symbol mark consists of symbols that allude to the name of the company or service and are more easily recognized by the public.

Fig. 5 Pictorial symbol mark examples: Apple and Twitter

An abstract symbol mark comes from an idea that is not directly related to the company, (fig. 6) consists of extraction of what will be the real object and is modified to become more abstract.

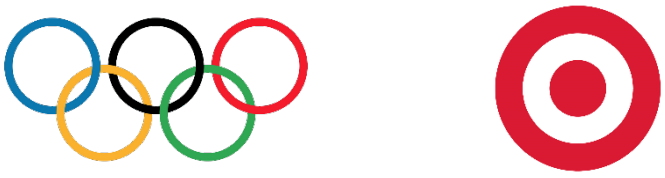

Fig. 6 Abstract symbol mark examples: Olympic and Target

A nonrepresentational visual, as the name implies is a symbol that does not represent an object or person (fig. 7). This is very similar to the abstract symbol mark being that if we look at it we cannot relate to the company or product (only if we have seen it before) and the abstract symbol we can still identify parts of the company.

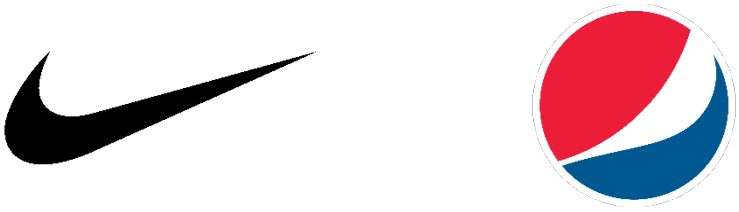

Fig. 7 Nonrepresentational visual examples: Nike and Pepsi

1.2.4 COMBINATION MARK

The combination mark is the junction of the symbol with the typography and one cannot work without the other (fig. 8).

Fig. 8 Combination mark examples: Citibank and Burger King

1.3 BRAND

The brand concept also comes from Gutenberg's idea. The brand is what represents the company, product, or service, and in 1437 the Gutenberg logotype had the function of marking/sharpening the paper, thus giving rise to the term brand (Raposo, 2008). Despite this, the brand is not just the logo and the logo is not the brand. There is some confusion about both terms, but the logo is just the peak of the mountain and the mark is the whole mountain, in other words, the logo is just one part of the visual and "The brand is the persona of what sits behind it" (Davis & Baldwin, 2005) all the visual parts, meanings, and characteristics. It is the people who define the success that the brand will have so it must show its target audience that it is reliable, so that they will be interested in the brand.

In the end, regardless of the way the brand wants to be seen, it is the audience that decides if that means it. As Marty Neumeier says "A brand is a person's gut feeling about a product, service, or company"(2005). The audience follows brand development over time, either through messages received directly or indirectly (products, services, graphic objects, customer service, environments, etc.). These messages "they function as groups and systems of signs and, as a code, culminate in the collective social imagination"[9] (Raposo, 2008, p. 15).

For Robin Landa, the brand is above all the name of a company, product, or service, but it gains other meanings as the idea behind it unfolds. The brand will contain several meanings, either by brand identity, which corresponds to the logo, name, website, packaging, and other possible applications of this brand, either by its physical, emotional, and cultural associations or by the perception that the audience has (Landa, 2006). So we can assume that the brand will have three meanings: purpose; decoded meaning; aberrant decoded meaning. The purpose is how the company wants to be seen or what it wants to achieve, and this kind of meaning is controlled by the company itself. The decoded meaning is when the brand gives information about its goals and qualities, and the company still controls this meaning. The aberrant decoded meaning is when the company loses control of meaning and the brand begins to gain other meanings beyond what was intended, most often due to the public's perception of it (Raposo, 2008).

The main goal of any brand is to gain trust, admiration, and a sense of belonging to its target audience. The brand is not something that can be touched/seen but a set of features behind a company, product, or service, of which these features are visually manifested through symbols, logos, colors, etc. (Olins, 2009) Joan Costa adds that the brand is a set of communication strategies. The brand must be flexible enough to unfold over various media without losing the characteristics it represents while remaining consistent so as not to lose credibility. Due to this, it is necessary a constant renewal of the strategies and the visual forms that it gains (Costa, 2011). Due to the impact that the brand

[9] "funcionam como grupos e sistemas de signos e que, enquanto código, culminam no imaginário social coletivo." (Raposo, 2008, p. 15)

can have on the public, the company, product, or service must take into account that the visual part is the first contact that the public has with its corporate values. If the company's materialization is not renewed, updated, and managed, the company may end up losing public confidence. The graphic design of the elements that communicate the corporate values of the company brings benefits to the company in that design can create new value, prospection, and innovation to keep the public interested in it. The management of the company graphics elements must be managed with the same concern as the management of other corporate elements (Raposo, 2008).

The importance that the brand has in our lives and the success of a product, service, or company is visible in our daily lives when we are surrounded by them, and most of our decisions and choices are around them. Branding is nowadays one of the most competitive branches in which "brands are now one of the most powerful tools in western world and account for one-third of the world's wealth" (Davis & Baldwin, 2005). There is almost no sector that escapes brands. Joan Costa says "what cannot be named does not exist"[10] (2004) this means that if we want to establish our product, company, or service in the market then we must have a name that identifies us. We live in an overcrowded market and if there is no differentiation of brands and names that identify these, each service or product is just merchandise (Landa, 2006). It is the name that makes the auditory mark, but our auditory memory is less effective than our visual memory and so the name must become visual. Thus, the brand will contain verbal messages and visual messages, but the verbal belongs to everyone and the visual are exclusive to the company. This means that the brand name can be spoken by everyone, but the replica of the visual message, the symbols that represent it, is prohibited by law (Costa, 2004). This is intended to further differentiate the brand, and by law cannot exist a brand equal to another.

One of the most important elements of the brand is differentiation. Nowadays everything can have a brand to stand out from others, from schools and hospitals to funeral homes and even people. But it's not enough to have a name and logo to have a successful brand. It is necessary to have a vision, an idea that stands out from what

[10] "Lo que no se puede nombrar no existe." (Joan Costa, 2004)

already exists, and a strategic position in the market. Authenticity is another feature of successful brands. An authentic brand means that it is a brand that knows who it is, what it wants to represent, and what it wants to convey. These are brands that not only promise, but also deliver. Creating a trusting relationship between the brand and the consumer will also allow the brand to last. The durability of the brand will make the consumer identify this as familiar. For it to become familiar, there must be consistency in the brand. For the consumer, the interaction with it must be almost imperceptible in the sense that he hardly realizes that he is interacting with it because he is so used to it. Even so, brands need to be open and ready to change if needed to stay relevant (Wheeler, 2009). Having these characteristics will connect with the audience and will eventually add values (the behaviors must match these values). The brand will add value to the product, service, or company (Davis & Baldwin, 2005).

1.4 VISUAL IDENTITY

In the dictionary, identity is defined by "the characteristics, feelings or beliefs that make people different from others" or "who or what somebody/something is" ("identity," n.d.). Applying this definition to brands, we can say that the identity of a company, product, or service is its name, its characteristics, and qualities that distinguish and differentiate it from others. Visual is related to vision, so something we could see. Thus, we can say that visual identity is the brand and/or the qualities and characteristics of the brand that can be seen by the audience. Therefore, the visual identity can be constituted by several visual applications of the brand.

The visual identity is the symbols, logos, colors, typography, and even architecture of the stores or company, product and its packaging, and all its visual appearance. But if we are talking about corporate identity, then it will be all the visual identity plus the idea that the public has, the organization of the company, what it is dedicated to, etc. Corporate identity adds more elements than visuals, such as olfactory and auditory elements.

To define the brand's visual identity, it is necessary to consider the history, beliefs, philosophy, and the people who are founded or employed by that company. The visual identity has to be something that represents all of this (Rivers, 2003).

1.5 LOGO ELEMENTS

1.5.1 NAME

The name is probably one of the first aspects of the brand to be thought, given that a good name is important to make the brand memorable. "The right name is timeless, tireless, easy to say and remember"(Wheeler, 2009, p. 20), and therefore should not be a complicated word to pronounce and/or difficult to remember.

According to Wheeler, some of the characteristics a name should have are: meaningful (supports the image the brand wants to have and convey to its audience); distinctive (not confused with other brands); modular (can split into others if needed in the future); protectable (domain available); future-oriented (is a sustainable name for several years, not following temporary trends); positive (has no negative connotations); visual (looks good in visual form, being logos or other) (2009).

There are several types of names, which can be: founder(s) names (for example Ferrari; Levi's); metaphor (names that draw attention to one or more brand qualities and could be names of animals, objects, sites, etc., for example, Nike or Puma); descriptive (name describes what the brand is or tries to sell, such as Save the Children or Toys "R" Us); Acronym (initials of a name such as, IBM or CNN); fabricated (names that mean nothing just invented by the brand, such as, Xerox or Kodak); Magic spell (words that change the way you spell and say to form the brand name, for example, Netflix or Cingular); Combinations of the above (Some names combine more than one type, such as Citibank) (Wheeler, 2009).

1.5.2 SYMBOL

All professions have their goals and graphic designers, as Paul Rand says, have a very complex one "the discovery of an image universally comprehensible, one that translates abstract ideas into concrete forms" (2016, p. 7). When the designer successfully achieves his goals, he creates new ways to communicate ideas, in ways that are understood by anyone. Jorge Frascara considers that graphic design is the basis of human communication, being the graphic designer who interprets the world around us and then creating symbols that will become something to be seen or read uniting the designer with the viewer (1995). The world we live in is full of symbols, which are the language that connects the artist with the viewer (Rand, 2016). Therefore, knowing how to read visual stimuli is very important for humans, to understand the world around us and to be able to interpret the images and symbols that are part of this world. We are currently speaking over 3,000 unique languages around the world, which means we cannot learn them all. When it comes to interacting with a person who speaks a language we cannot speak, we use gestures and symbols to try to communicate. One of the characteristics of visual communication is that it is universal. The human being, if he can see, means that he will automatically interpret what he sees around him, directly and indirectly. Directly when experiencing and recognizing visual experiences, and indirectly when we realize something we had not seen before or immediately noticed arising from patient observation (Dondis, 1991). Even if it is a natural process for humans, there must be an education of symbols so that they are not misunderstood by the viewer. It is not enough to see it is necessary to look and interpret.

> "There is a vast universe of symbols that identify actions or organizations, moods, directions - symbols ranging from the most lavish in representational details to the completely abstract, and so disconnected identifiable information that you need to learn them so as learning a language."[11] (Dondis, 1991)

Although the concept of semiotics was proposed by St. Augustine in the year 397, it was not until the late nineteenth century that this science began to gain some attention when Ferdinand de Saussure and Charles Sanders Peirce laid the foundations of the current semiotics. Francisco Mesquita says "the basis of this science is the sign, which can be understood as being an object that conveys a given message, or just part of it"[12] (Mesquita, 2014). For Peirce, there were three different types of signs: iconic (there is a mimetic relationship, similar to its referent), indicial (direct, causal relationship, with its referent) and symbolic (it has no relation with its referent, it is part of a convention), whereas Saussure only divides the sign into two parts: the signifier (the physical part of a sign) and the significant (concept or idea conveyed by the sign). In addition to these, two more concepts arise denotation and connotation. The first refers to objectivity and the second to emotional values (Mesquita, 2014). These concepts were developed by Roland Barthes, who explores the order of meaning. Denotation is, therefore, the object being the signifier and the signified. The connotation adds meaning to the object, thus moving away from the field of subjectivity. In addition to these, Barthes calls the third order of meaning myth that is generated in the combination of the concepts of denotation and connotation (1957). Carlos Rosa says that "signs and codes are generated by myths, and myths are actually understandable metaphors"[13] (2012, p.56) thus establishing the importance of metaphors in design, as they make it easier to communicate through the combination of concepts that are familiar to us, we can communicate something unknown up to that moment. All these authors, linked to semiotics, contributed in some way to our understanding of signs. Pierce establishes a relationship between signs, user, and reality, while Saussure explains the relationship between meaning and signifier, in turn, Barthes introduces the concept of connotation and denotation. Even though they made all these

[11] "Existe um vasto universo de símbolos que identificam ações ou organizações, estados de espírito, direções – símbolos que vão desde os mais pródigos em detalhes representacionais até os completamente abstratos, e tão desvinculados da informação identificável que é preciso aprendê-los de maneira como se aprende uma língua." (Dondis, 1991)

[12] "The basis of this science is the sign, which can be understood as being an object that conveys a given message, or just part of it." (Mesquita, 2014)

contributions, it was Charles Morris who divided semiotics into syntax, which would be the relationship between symbols; semantics, the relationship between object and meaning; and pragmatic, which was the relationship between symbol and user. Morris found it important not only to understand the relationship between human beings and signs but also the ability of signs to relate in groups. Also, Morris considered that the understanding of the human being and his works passed through the study of semiotics (Morris, 1938).

Clive Ashwin separates the sign into two parts. There are two participants, one sending and one receiving. If the function of a sign is to communicate a message, then the emitter is the one who transmits the message through codes to which the receiver will decode so that he can receive the message (1989). Ashwin explains how semiotics is used in logo design:

> "Drawing for design is also deeply involved with the creation and interpretation of signs as symbols. For example the designs of logograms for corporate identity are often symbolic in two senses: They employ alphabetic motifs such as company initials; and they attempt to symbolize the company's supposed character by means of appropriately devised forms, be they "robust", "refined", or "sophisticated."(1989, p. 201)

For successful communication, Jorge Frascara says that there are two factors to take into account the perceptual (when it involves visual detention issues and communication issues like visibility, readability, and aesthetics) and behavioral concern (how visual communication affects audience attitudes) (1995). These factors are controlled by the graphic designer in the sense that he must know who and what he is designing for, to try to minimize communication problems. Paul Rand says the symbol can have more than one meaning, so "by juxtaposition, association, and analogy the designer can utilize its effectiveness to fulfill a specific function" (Rand, 2016, p. 14). Thus, the designer can

[13] "os signos e os códigos são gerados por mitos, e os mitos são na realidade metáforas entendíveis" (Carlos Rosa, 2012, p.56)

manipulate the symbol to affect viewers in a desired way. Ann C. Tyler says that "the goal of visual communication is to persuade an audience to adopt a new belief" (Tyler, 1995, p. 112).

One of the best-known cases of a symbol that, due to external causes to the origin of its creation, had another interpretation of the public was the swastika. Before having the negative meaning, as a symbol adopted by the Nazis, this was a symbol with very different connotations and used by different cultures. This was a symbol that meant good luck,

> "The swastika as a good luck symbol was adopted by American merchants and manufacturers on packaging, wrappers, and in advertising. It was frequently used as an architectural ornament, and was also popular as an ornament or border in prewar typeface books" (S. Heller, 2004, p. 330)

This was widely used in graphic design from 1920 to 1930 but fell out of favor when in 1933 when the Nazis came to power and this was the symbol used to remind people of the worst crimes in human history. Today, most people continue to associate this with a negative period of history. And so, Adolf Hitler succeeded in transforming a symbol with positive connotations into one that went beyond all these. Even those who disagreed with Hitler and Nazism agreed that Hitler's identity system was the best that ever existed, thus admitting that from a design standpoint Hitler knew how to apply the symbol to his cause and how to advertise, to make it a symbol of respect and fear. Even with the end of Nazism and Hitler's death, "the swastika will remain forever the most powerful logo of the age, the manifestation of evil and hate" (S. Heller, 2004, p. 332).

For Frutiger, symbols are divided into abstract, figurative, and alphabetic forms. The figurative are the ones we can identify references we know, like the image of an animal. The abstracts are parts of figurative, and their immediate identification is more difficult. The alphabetic forms, as the name implies, derive from the shape of the letters. Abstract symbols were a postwar trend, which Frutiger considers were times when there

was a lack of originality, innovation, and strong concepts. From the '80s, these symbols came to have stronger concepts, were different from the previous ones and the innovation was visible, of which it considers a positive change (Frutiger, 2007).

1.5.3 TYPE

The identity of a brand is always used typography, so choosing this must be a decision carefully thought by the designer. Some brands select to choose multiple fonts, while others choose the same font for everything. The font chosen is not necessarily the same as the logo but complementary to it. Some of the things the designer should consider when choosing brand typography are readability (the ease that the text is read is one of the most important features of typography); legibility (how easily text is recognized and perceived); visual hierarchy (it should be easy to understand what is the most important information using different fonts or sizes and weights); context and flexibility (the font should work in all required sizes and applications) (Landa, 2006).

All fonts chosen by the brand must be licensed, and some brands end up creating their font to also make this element a differentiating element. Some of the fonts created for a brand are, for example, as shown in figure 9, Tate designed by Wolff Olins for Tate Modern in London or Assembly by Ragged Edge for Assembly Hotels.

Fig. 9 On the left side Tate designed by Wolff Olins for Tate Modern in London and on the right side Assembly by Ragged Edge for Assembly Hotels

1.5.4 COLOR

Color is linked to emotions and can have different meanings depending on various factors such as culture, psychology, marketing context. Apart from these factors the way each of us looks at colors also affects our perception of it. In turn, the associations we make and the way we respond to color may be related to psychological and/or cultural issues (Landa, 2006).

According to Eva Heller, asking what color means is also asking what a person's habits are. For example, green in ancient Egypt is considered a sacred color, with connections to the green-skinned god Osiris who was nicknamed "The Great Green". In northern Europe, green is a color with negative connotations, because it is so abundant that it becomes a color associated with demons and Eve and the serpent (green) that, according to Christians, was when evil entered the world (E. Heller, 2013).

When thinking about a brand's visual identity, we have to think about all these issues to avoid negative connotations, so we need to do research on which countries and cultures we are choosing colors for, especially if the brand is international.

Color can increase the level of brand differentiation, and humans respond to color very quickly. According to Wheeler, the brain sees color first and only then shape and content. And this is one of the reasons why color plays such an important role for the brand. Some brands have their colors and we can quickly associate a color with these, such as Coca-Cola with red. In this case, Coca-Cola succeeded with red, distinguishing itself from the competition, with Pepsi being more associated with blue (as shown in fig. 10). In addition to differentiating the brand, color can also be used functionally to distinguish within the same company several brands (Wheeler, 2009).

Marketing trends have also influenced our perception of color by simply seeing an orange-colored drink we associate with an exotic drink and if we see a yellow cleanser, we know it smells like lemon. Thus, we associate colors also with messages without the need for them to transmit us directly. But it is important to bear in mind that separate

color has one meaning and then together they can take on other meanings, such as red alone can be the color of love while together with black it can be associated with violence and danger (Landa, 2006).

In short, when choosing a color or color palette for a brand it is necessary to take into account their symbolism for different cultures/countries, to know which colors are used by competitors to have a higher level of differentiation, to understand what are the trends and what messages can be passed through colors and understand how they interact with each other and in different applications (websites, print, packaging, etc.).

Fig. 10 Coca-Cola red can, and Pepsi blue can. The colors make it easy to differentiate them in stores.

1.5.5 MOTION

As already mentioned in the previous chapter "Historical Framework", from the 1990s onwards, with the ease of certain technologies, logos also start moving. They come to life and interact with us and their surroundings. The brand does not have to be something static it can be something that fits the situations. Wheeler believes that even if there are the technologies needed to make a brand moving, designers are not taking full advantage of the technology's potential. Movement can be an element of differentiation, and a way for the brand to stand out in the competitive market, but many do not use the technology and remain static (2009).

When asked about the role of animation in logo design, Sagi Haviv replied that it is important these days because we live in a digital world, but that logo animation carries risks as it always must function statically. It says that simple shapes work well statically as well as moving (2010). In figure 11, are presented as an example of a simple shape that works as animation because it conveys a meaning behind the static shape, giving it a function, story, and strategy. Some of the attributes he considers essential in a good logo animation are: essential (there is a reason behind every move); harmonious (must evolve from the visual identity of the brand); strategic (must communicate brand personality); communicative (must tell a story); resonant (special attention to the rhythm, speed, and transitions that define the mood and emotion that it want to convey) (2009).

Fig. 11 Animation of the logo Library of Congress, by Sagi Haviv (2009)

1.6 DESIGN METHODS

Before we even think about design methods, we would have to understand what design is. In a design dictionary the first pages read "At the risk of disappointing you, dear reader, it is impossible to offer a single and authoritative definition of the central term of this dictionary — design" (Marshall & Erlhoff, 2008) thus making it clear that the term design is indefinable. Only the word "design" in the English language is a verb, name, and sometimes even an adjective. Although there are many types of design and it is something very present in our lives, there is (still) a bad definition of what a designer does. There was the idea that design was a "mysterious talent" (Cross, 2006) this misunderstanding comes from a limited theoretical basis of the discipline.

Regarding this indecision and the definition of the term, Mike Press and Rachel Cooper argue that it is the designers who create their definition of design. Today we are more flexible in terms of work, technology is evolving faster, and the designer has a set of valuable capabilities such as creativity, imagination, and ingenuity that are important to the new economy. And so to continue growing and not falling behind we have to learn what it is to be and think like a designer (2003).

Both Don Norman and Victor Papanek argue that we are all designers. Papanek explains that design is a natural activity for the human being and that it is present in our lives in the simplest tasks of everyday life, such as deciding what to wear. So he defines design as a "conscious and intuitive effort to impose a significant order"[14](1973). Norman says design is a set of choices. It is the man who manipulates the environment around him by making the necessary choices for his well-being (2013). Nigel Cross agrees with Papanek and Norman:

> "Designing is something that all people do; something that distinguishes us from other animals, and (so far) from machines. The ability to design is a part of human intelligence, and that ability is natural and widespread amongst the human population. We human

[14] "o esforço consciente e intuitivo para impor uma ordem significante" (Papanek, 1973)

beings have a long history of design ability, as evidenced in the artifacts of previous civilizations and in the continuing traditions of vernacular design and traditional craftwork. The evidence from different cultures around the World, and from designs created by children as well as by adults, suggests that everyone is capable of designing." (Cross, 2006, p. 29)

The 21st century has seen the explosion of design, in a way that the discipline is now recognized and embraced by companies, who do not always realize that the value of design is not in bringing more profit, but a way to solve real problems (Cooper & Press, 2003). And to solve these problems the designer must be able to explore ways to find solutions.

Table 1 shows some of the methods used by designers or written by those who study design. The table serves to clarify the comparison between them, what they have in common, and in what they diverge. It is important to consider that the table presents a sample of all methods. These are methods written by designers, but also engineers who studied the design method.

Table 1. Design Methods

LOGO DESIGN				GENERAL DESIGN							
ALINA WHEELER	MESQUITA	LANDA	ADAMS & MORIOKA	PAUL RAND	FRASCARA	ASPELUND	MUNARI	HANINGTON & MARTIN	ASIMOW	ARCHER	LUPTON
Conducting Research	Brief	Strategy	Establish Criteria	Experiences	Commission of the project	Inspiration	Problem Statement	Planning, Scoping, Definition	Feasibility Study	Policy Formulation	Defining the Problem
Clarifying Strategy	Research	Concept	Exploration	Perceives	Collection of information	Identifica-tion	Identification of aspects and function	Exploration, Synthesis, Implications	Preliminary Design	Preliminary Research	Getting Ideas
Designing Identity	Study	Applications	Refine	Analyses	Second definition of the problem	Conceptu-alization	Limits	Concept Generation; Early Prototyne	Detailed Design	Sketch Designs	Creating Form
Creating Touchpoints	Develop-ment	Implemen-tation	Applications	Organizes	Definition of objectives	Exploration and Refinement	Technologi-cal availabilities	Evaluation, Refinement, and Production	Planning for Production	Detailed Design	
Managing Assets	Visual Identity Manual		Production	Symbolizes	Third definition of the problem	Definition and Modeling	Creativity	Launch and Monitor	Planning for Distribution	Prototype Construction	
			System	Synthesizes	Development of the design proposal	Communi-cation	Models		Planning for Consump-tion	Ideating Appraisal	
					Presentation to the client	Production			Planning for Retirement	Production Design	
					Organization of production					Production Planning	
					Supervision of implemen-tation					Tooling	
					Evaluation of performance					Production and Sale	

SUMMARY		
Finding and Defining the Problem	Creation	Production and Managment

One of the problems that can arise in defining a design method will be that design is a very wide-ranging word, and there are several types of design. The way a fashion designer works will not be the same as a graphic designer works, because the final product is not the same so the methods cannot be the same (Lawson, 2005). They may have some methods in common especially at the early stage of a project that most of the time regardless of the final product is always done the initial research and problem definition. So regardless of the type of design, there is always something every type of design has in common.

> "Many forms of design then, deal with both precise and vague ideas, call for systematic and chaotic thinking, need both imaginative thought and mechanical calculation" (Lawson, 2005,p. 4)

Having methods can decrease the time it takes to find a solution and make it "more efficient and effective", the methods never led to the solution, but they are tools for finding it (Frascara, 2004). Despite the idea that rules or methods block creativity, even the designer can benefit from these, and sometimes it is these that help in the process of creating something be it a product, service, graphic image, etc. It is not necessarily compulsory to follow any project method, but if we do not do so, we risk going around and having to restart the project more often than if we first started defining series of operations. Besides, Martin and Hanington also consider that the use of a design method can facilitate the conversation with "stakeholders, team members, clients and most importantly, with the people who will ultimately use design products, systems, and services" (2012, p. 6).

Since 1960 there has been a great evolution in the study of design methods, as people began to realize that the way of thinking of the designer could be used for other areas as well. Most of the literature written on this was done by engineers, architects, and industrial designers (Frascara, 2004). Only recently have more designers started talking about their design methods like Alina Wheeler, Paul Rand, Ellen Lupton, etc. Lawson says

that most maps made for the development of design methods are "logical and systematic", also because most of them are done by those who study design and not by those who do it (2005). This may be a result, as Frascara said, of the majority being made by people connected to more scientific areas, such as engineering, and for that reason, they look for logic among the creative method of problem-solving done by designers (2004). Cross says that the origin behind design methods has a scientific basis and that the evolution that occurred in the second half of the 20th century is related to the evolution of technologies, being that:

> "The reasons advanced for developing new methods were often based on the assumption that modern, industrial design had become too complex for intuitive methods" (Cross, 2006, p.97)

The complexity of the way of making design changed due to a post-industrial society and thus there was a need to outline and organize the methods that until that moment had not been given much importance.

By analyzing several design methods proposals we can see that they all have their differences, which many designers agree that there is no right formula for carrying out a project. It all depends on the person who is doing the project, and which phases you prefer to do the work also depending on the type of project and other characteristics it may have, such as time. Aspelund considers that even if there are limitations in projects (budget or deadlines), the designer must take time to think about the idea he wants to materialize because it is responsible for what it can influence and how it can evolve. Project needs, limitations, and demand can change rapidly in a world where there are concerns about the environment, technological developments, and changes in values, being that the designer will have to have an almost seer role and think about the evolution of the idea as well as be aware of it, even after its materialization (2010).

Paul Rand considers that the designer is confronted in the initial phase with three elements: the given; the formal; the psychological. The given is what already exists related

to the project, for example, if the project is a logo for a specific product, you are provided with data about the product. The formal is all the basic elements that are known to the designer and that he will have to apply in the design, such as color and line. The psychological is the emotions that the final product can cause to the designer, customer, and target audience. The designer brings all these elements together and observes them in order to create a mental process to analyze, interpret, and formulate a solution (2016).

One of the interesting proposals for organizing a method is that of Hanington and Martin. They give phases that should be common to all projects, but within these phases, there are several different methods. The phases that are common to all are planning; scoping; definition; exploration; synthesis; design implications; concept generation and early prototype iteration; evaluation; refinement; and production; launch and monitor. They then consider that the only variant will be the design methods, but that the phases of the design process will always be the same (Martin & Hanington, 2012).

Lawson analyzes some "maps" related to the design method and reduces these maps to three phases: Analysis; Synthesis; Appraisal. He started to notice that there was this idea that the design creation process would have to be something logical and that to find a solution the designer would have to go through several steps to find a solution. The design process is not as organized as these "maps" make it seem. Lawson concludes that "(…) design is a process in which problem and solution emerge together" (Lawson, 2005, p. 48). If so, the attempt to come up with a design method is not linear and has to be flexible enough to be changed. Thus, Lawson's three phases arise, in which:

> "Analysis involves the exploration of relationships, looking for patterns in the information available, and the classification of objectives. Analysis is the ordering and structuring of the problem. Synthesis on the other hand is characterized by an attempt to move forward and create a response to the problem – the generation of solutions. Appraisal involves the critical evaluation of suggested solutions against the objectives identified in the analysis phase." (Lawson, 2005, p.37)

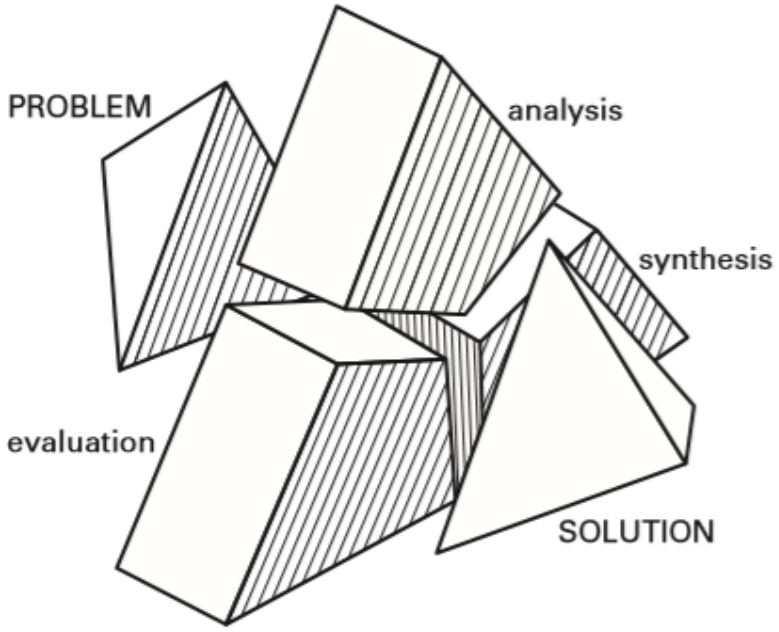

Fig. 12 "Map" propose by Lawson, that don't have any indication of a starting point or a finishing point, just suggesting that solution and problem can appear at any point and between them there is a mental process of analysis, evaluation and synthesis (Lawson, 2005)

In short, there is a problem that needs to be analyzed and structured, there is a synthesis of the problem that will lead to the solution, and in the end, there is the evaluation phase. It seems that all the methods presented in table 1 have these three phases presented by Lawson, even if they have different names, they can be easily summarized to this. Even so in the various interviews in Fernando Oliveira's dissertation, most professionals say that to teach they prefer the linear method even though they know that in practice things are not always as linear as they seem (2015). Frascara says that the method must be a mixture of "abstract processes and tentative visualizations" (fig. 12). In an initial phase of the search for the idea, rational strategies, and attempts to visualize the result are not necessary. Only after analyzing and formulating the problem, ideas start to emerge, but this search for solutions should be exhaustive and not be based on the first idea (Frascara, 2004).

The problems that the designer deals with are "multi-dimensional and highly interactive", which means that they are complex problems (Lawson, 2005). Through the

analysis of complex elements, breaking them down into simple ones is the way that the designer manages to organize the problem and understand it better (Rand, 2016). Munari considers that being given or defining the problem will give rise to other subproblems as we realize what their aspects and functions are and define their limits. These subproblems in turn are grouped into categories for later, with the collection of all data, which can lead to simple problems. These simple problems with the help of creativity have become the solution considering that creativity is the synthesis of all these simple problems (1981). The designer's goal is not only to answer these problems, but to add something more to this, in other words, to have the ability to not only find a solution, but also to give it a way of "adding value to the experience of the public, and attending to cultural, personal, and experiential dimensions" (Frascara, 2004, p. 94).

For Munari, the problem statement is the first stage in which the problem is to be defined, this definition can be given by the designer or his client. In the second phase, we analyze the problem in its psychological and physical components, followed by the limits that are the phase that realizes what are the limitations of the problem and define the elements of the project. In the fourth phase, it is clear which technologies could be used to produce the project. Creativity is the phase Munari defines as "the synthesis of the collected elements, a synthesis that should lead to the optimal fusion of all the components"[15] (2006, p. 367). Finally, the designer and client are given the choice of which model is best suited and which will ultimately result in prototype and possibly end product. Munari considers that any design project starts with the problem. It is necessary to define well what is the problem because it is in the problem that the solution is found (2006). This is an idea shared by all the methods presented here since they all start with some way of dealing with the problem.

Asimow divides the project method into two different phases, primary design phases and phases related to the production-consumption cycle, the first has to do with the project and the second is related to project management. The primary design phases

[15] "a síntese dos elementos recolhidos, síntese que deverá conduzir à fusão ótima de todas as componentes." (Munari, 2006, p.367)

are divided into three parts: Feasibility Study; Preliminary Design; Detailed Design. The feasibility study phase aims to understand what the problem is and its parameters and limits, while the preliminary design phase is when the concept is decided and more specific studies are done, such as predicting how the solution will stand with time. In the detailed design phase, the research part is closed, and a solution is arrived at and there may be changes and improvements in this phase depending on the prototype experimentation. The phases related to the production-consumption cycle are divided into: Planning for Production; Planning for distribution; Planning for consumption; Planning for retirement. These are all planning stages that are not directly linked to design but Asimow considers it important for designers to consider as well, as it has a great impact on design. Asimow then suggests that the designer does not stop following the project and collaborate with those responsible for production and distribution, to follow the product throughout its life cycle from research to the product goes to waste (Asimow, 1962). Although some designers do not mention the production and management phase, it does not mean that they do not consider it, they just do not mention it because they leave it in the hands of other professionals, other than the designer or because it is most often a collaboration phase. Adam and Morioka refer to the collaboration phases, and in the first two phases of their design method (establish criteria and exploration), both are in collaboration with the client to gather information, clarify the existing message, develop a schedule, among others. In addition to these, they admit that the last phase (system) is a collaboration phase as well, not only with the client but also with consultants and in-house departments. The designer's collaboration with other designers and with people who may be involved in the project is important because:

> "Thinking doesn't happen just inside the brain. It occurs as fleeting ideas become tangible things: words, sketches, prototypes, and proposals. More and more, thinking happens among groups working together toward common goals" (Lupton, 2011, p. 15)

Archer, on the other hand, has an opinion like Asimow's regarding his design method. With ten different phases, Archer considers that the project ends when consumers receive feedback, at an advanced stage of the project where the product is already available to them. So, if only at this stage does the design method end, then the designer is present in the production and distribution planning phases. Archer explains that:

> "Techniques for the handling of all the phases of design exist, at least in principle, within the disciplines of management science, operational research and the various branches of technology. An essential part of the designer's skill is to be acquainted with these disciplines and to be able to discern which techniques are appropriate to what phase" (section 11.9, 1989)

There seems to be an idea then that the designer is not alone in this process. It is then necessary for the designer to learn and understand which techniques to use for the success of the project. Don Norman clarifies the importance of other disciplines in design by saying that:

> "Great design requires great designers, but that isn't enough: it also requires great management, because the hardest part of producing a product is coordinating all the many, separate disciplines, each with different goals and priorities" (2013, p.34)

All the examples in the table seem to agree on the idea that "a design project is, in fact, a sequence of design problems" (Archer, 1989). All design methods aim to find the solution, so if there is a solution is because we had to find a problem before this. Most designers seem to agree that before thinking of any solution one needs to identify and define the problem. Asimow says that there will be a temptation to skip phases to come up with a quicker solution, which he does not advise to do so, as we will enter a mental rut where creativity will be limited (1962). For Munari creativity is the synthesis of

research done earlier, so as Asimow, Munari considers the primary phases of research and problem definition as the most important phases for a creative solution (2006). Rand also uses the word synthesis to refer to the end of the design method (the solution), since it poses several phases of investigation, such as experiences; perceives; analyzes; organizes; symbolizes; before reaching the final product (2016). Hanington and Martin also refer to the synthesis as the end of the research phase and what opens the door for the generation of solutions (2012).

Alina Wheeler says that before defining the best method for creating a brand it is necessary to define what kind of project is. Lawson agrees with Wheeler, saying that methods can change depending on the project and the designer because "what might seem a fundamental early decision on one project may seem a matter of detail which could be left to the end on another" (Lawson, 2005, p.39). It can be a completely new company, service, or product and therefore in need of a complete visual identity, but also can be an existed company, service, or product, and then they need smaller changes, and we need to adapt the methods to this. There are several scenarios: Name change, either because the old name has negative connotations for the current market or because it no longer matches the values of the company or even because the company will join another; A company, service or product that has been on the market for some time and needs revitalization, either because the market has changed and the old image is no longer in line with it, because they never fit the market they wanted or just because they want to bring a new product or service to the market; Revitalize the visual identity of the company, service or product, either because people do not recognize the logo, because they are not at the same level of competition or because they want to introduce other applications (such as website); Creating a system where all the elements that are part of a brand's visual identity relate to each other and work together, this is necessary when the company, product or service brand system is inconsistent in how introduces himself; When two brands come together, in this case it is necessary to make a combination of the two that makes sense and it is necessary to communicate to the public that the two together will be stronger than they were (Wheeler, 2009).

While it is important to define what type of project and client we are working on, Wheeler considers that the process always stays the same regardless of these factors. It considers that what these factors will influence is the deepening of each of these phases and withdrawing phases to save time and money may be a risk to the brand and may result in problems in the future. For Wheeler, the process always consists of: conducting research, clarifying strategy, designing the identity, creating touchpoints, and managing assets. The project always begins by clarifying the concepts, values, characteristics, and vision that the brand wants to represent/have, followed by research on the competition it may have, the needs and perceptions of stakeholders. The second phase is to write the briefing, to clarify the brand position in the market and to understand if the customer is satisfied with how the values and the visual identity of the brand are interconnected. The third phase is when you start to realize the visual part of the brand from research to paper, it can be a phase where we brainstorm, explore applications, and present a visual strategy. The fourth phase is when the visual strategy is finalized, the problems raised by the customer in the previous phase are corrected, and licensing is started. The fifth (and last) phase is the brand implementation, the guidelines, and standards (Wheeler, 2009).

For Landa, the process is very similar to Wheeler's starting with the definition of brand strategy in that Landa considers the research part and analysis important for the understanding of the brand not only by designers but also by the client. He considers this phase as important at the beginning of the process as at the end, before implementation, to analyze and research again whether the chosen visual identity will not have problems for some reason, such as a poor perception and acceptance by the target audience, or by negative connotations related to the culture of a certain country in which the brand will be inserted. To avoid this, he advises the use of focus groups to criticize the brand to identify problems that may arise later. That said, Landa reduces the process into four different phases, but similar to Wheeler's: Strategy; Concept; Applications; Implementation. He considers the second phase (concept) the most difficult of the whole process because if the concept is not solid the brand will not have the desired success. The concept can also be called the idea, it is what differentiates the brand from others and

what makes it unique. A well-applied concept will communicate the brand spirit, strategy, and style (Landa, 2006).

The concept/idea behind the brand can (and should) emerge in the early part of the brand process, that is when we are in the early stages of defining brand values and characteristics, realizing who their potential competition is, who are the target audience, etc. For Mesquita, the idea comes between the research and development phase. Mesquita begins the process by the briefing. The briefing is the strategic plan, which gathers all the information that will be useful for the rest of the process (Mesquita, 2014). The briefing may be given by the client at an early stage or done entirely by the designer, and even if done by the client it should be reviewed by the designer and changed so that it will be useful for the rest of the process as new information comes up. The client sometimes doesn't quite know what the problem is. The designer will have to have the confidence not only to define the problem but also to change it according to the development of the project (Cross, 2006). Two types of briefings can be held, one being the creative brief and the other the design brief, the difference between the two is that the second focuses more on applications and so perhaps it is better to do after the creative brief. Landa suggests the following design brief example: Project title; Product Information; Market Information; Communication objectives; Format and size; Media; Constraints; Deadlines; Budget; Approval Process. While for an example of a creative brief, Landa suggests the following set of questions: What is the project title?; What is the challenge?; Who comprises the key audience?; What is our understanding?; What is our understanding?; What is the brand essence?; What is our strategy?; What should our execution be? (2006)

A briefing can take many forms depending on the project and its needs. But this is necessary for any branding project to make formulating a concept easier (Landa, 2006). The designer should not feel constrained by the brief and must overcome it, to achieve a creative solution (Frascara, 2004).

The colors in the table are presented to easily separate the methods that belong to the three main phases: finding and defining the problem (blue); creation (orange); production and management (pink). Thus, we are aware of two facts about the methods:

as previously mentioned some designers do not refer to the production and management phase; and, finding and defining a problem is the dominant phase. Rand, Frascara, Aspelund, and Munari dedicate four or more methods to this phase. Frascara has ten methods that he uses, five of which belong to the problem definition phase, two to the creation phase, and three to production and management. There is a whole unfolding of definitions in the Frascara method, in which it starts with the first definition of the problem, second, it collects more information which will allow to get a second definition for the problem and then it will also define objectives that will allow getting a third (and final) definition for the problem. Only after unfolding the problem does it go on to develop the design proposal that it will later present to the client. If the client agrees, he can go on to the production and performance evaluation phases (2004). Frascara confirms that:

> "Clearly, the most important aspect of a design project is at the conceptual level. But the power of a communicational concept can be strengthened or weakened by subtleties of final production"(2004, p. 134)

As good as the initial concept may be, the choices made to present it can damage the entire design. The designer must know what type of technologies to use and use them to be useful for the project. The choices in this phase are defined by three parameters: "communicational, economic, and technological" (Frascara, 2004). Good design must be evaluated by communicating what is intended, adapting to cultural issues, and being functional (Frascara, 2004). Nevertheless, the solution made by the designer when applied will always be criticized, and the way it will be received by the target audience will only be known after its implementation (Lawson, 2005).

Even analyzing these schemes, Lawson says we should not look at them exactly as they appear on paper. Although it seems that all of these are to be followed in a "predictable and identifiably logical order" (2005), this way of interpreting the schemes

can give problems later. The truth is that these schemes can be followed exactly in the order in which they appear, but it is not supposed to. In the end, every designer is different and uses different methods, sometimes taking a shower or walking in a park can be important steps in the design process for that designer. The process has a lot of phases that are very personal to the designer, which turns the whole process "a mix of intuitive and deliberate actions" (Lupton, 2011). Lawson says there is no concrete end to the design process. This ability to know when to stop has to come from the designer as there is no way to know if a design problem has been fully resolved (2005). The only conclusion that it seems we can take is that design methods are a design problem and that is why it is up to each designer to continue trying to solve this problem, as there are no correct answers when a design problem is at hand (Cross, 2006).

1.7 TECHNOLOGY IN GRAPHIC DESIGN

Technology has come a long way since the days of a pre-industrial society where all technology was craft, an industrial society where machine technology dominated to a now post-industrial society where intellectual technology dominates (Bell, 1976).

Gutenberg's Printing Press was the first technology that revolutionized the way graphic design is done and viewed. In the first half of the twentieth century, televisions appeared and started what would be the era of screens and therefore a shift from written communication to mostly visual communication (Crow, 2006).

The launch of the Apple Macintosh computer and its operating system in 1984 was important for design as it was this that popularized the idea of a personal computer. This meant that the designer could make the computer a common tool in his creation process, but for this, he had to acquire other skills such as the operation of several softwares as well as reproducing digital content. At first, the arrival of the computer was a threat to visual arts. Many focused only on their "crude visual output" and rejected the computer, even though in the United States of America more people started using the Apple Macintosh and experimenting with what they could do with it. They saw it as a way to break free from modernism (Crow, 2006). April Greiman was one of those designers that when asked if the computer could change the aesthetic part as well as the production part of the design, she said yes because we spent more time viewing and experimenting with new software that allows new options and possibilities. (Greiman, 1989) Over time more designers started to get used to the idea of working with a computer,

> "It is a matter, then, of knowing them, of knowing what modern techniques can offer us since art is undoubtedly linked to techniques and it is useless to continue with old techniques, tiring and static, especially when you want to present new communications."[16] (Munari, 2006, p.76)

[16] "Trata-se, então, de conhece-los, de saber o que é que as técnicas modernas nos podem oferecer, já que a arte está, sem duvida, ligada às técnicas e é inútil continuar com as técnicas antigas, cansativas e estáticas, sobretudo quando se querem apresentar comunicações novas." (Munari, 2006, p.76)

The computer brought power and more freedom to the designer. In the industrial revolution, the construction of machines as tools to help at work gave rise to a division between work and home, since people had a specific place of work (factories). The addition of the computer in the designer's life brought the opposite to the designer's profession and deleted this barrier. The computer allowed the designer to work wherever he wanted, whether at home or in a specific place. Although in this new era several professions had to specialize to survive, graphic designers had to do the opposite, and nowadays they have to know more skills and know a little bit of everything. Today, the graphic designer can perform a wide range of activities as it is increasingly widespread. As long as he had a computer, he had almost everything to do his job. Not only did it give him the freedom to be able to work in any space, but it also allowed him to do many more activities and experience other areas. Thus, by lowering the barriers, he was able to do more creative work.

> "The computer has now combined almost every design activity (including using the internet and email): information gathering; writing; editing; image acquisition; manipulation and creation; typeface creation and minute management of its spacing and arrangement; preparation and delivery of artwork; combining text and image in motion; website design etc. Almost never before have designers had such control of every aspect of what they produce." (Newark, 2002, p. 116)

Jennifer Cole Philipps disagrees with this idea saying that creativity can decrease with the increase in the time that the designer has to spend learning all the new digital technologies wasting time to design creative projects. Although the Internet is a great space for obtaining information quickly (which is essential for the research and concept formulation phase), in the act of making a project if we limit ourselves to using the computer, we can obtain superficial results. If we only use the computer, we cannot stay on the first page of a search engine, we need to search further to be able to select what is important from everything that does not bring anything new to the project (Lupton &

Phillips, 2015). Stefan Sagmeister also says that despite the possibilities that the computer came to present to the designer, he thinks it has also made the profession more boring:

> "The Mac allowed new fields in design to flourish (interactive, generative, web-related etc.). On the down side our everyday lives are threatened to become a bore, as we exchanged a profession that required the mastery of a myriad of tools to be performed in different rooms (silk-screening, painting, letter press printing etc) to a steady position behind a single screen" (Sagmeister, n.d)

In an interview with Eye Magazine, Bob Gill talks about how the computer has changed the profession of a graphic designer:

> "The computer has revolutionized the graphic designer. Any job that had to be printed in the past was a mystery. Insurance companies didn't know anything about the mystery of design and print, so they went to a design agency and paid a lot of money. It was a magical mysterious thing. Today for a few quid you can buy a programme and a typist can do an annual report that's adequate for 85 per cent of companies because it meets basic requirements. Well this is serious, because all of a sudden we can't just get away with doing something that just works. One of the things I do that a computer can't do is think. Layout is not the imperative anymore. We have to think and do what the computer can't do. This is not new to me. This was always my value and this was always of interest to me" (Gill, 1999)

Gill says the designer has to give more than he used to. The designer has to strive to be better than the computer and for that, he has to acquire not only the capabilities mentioned above, how the new software that updates frequently works, but also has to become a more sensitive being to what surrounds him and maintain a good synthesis capacity to deal with all the information coming from the internet. Other skills are a good understanding of human nature as well as culture; the ability to be a leader or/and to

work in a team; a good eye for detail; among others (Gordon & Gordon, 2005). It is these skills that will distinguish the designer from other people who, out of curiosity, start experimenting with software and start creating their projects. Design is no longer a "mystery" for companies and other people with small businesses who now have access to the same tools that a designer has. This software allows everyone to create all kinds of visual objects, from logo to business cards. But to be a designer it is not enough to have the technology you must have other skills associated with the profession that are what distinguish the designer from the rest of the professions. On the other hand, the variety of software made it possible for a project made by an animator, photographer, graphic designer, illustrator, etc., to be done by just one person, thus ending some hierarchies that existed in design (Crow, 2006). As time progresses these barriers that existed before the computer are getting smaller and smaller and today, we can almost say that they practically do not exist.

Hierarchies decrease, but the possibilities increase. Malcom Garrett explains that before the computer if he wanted to explore other things besides what he was used to doing, he would have to wait for an opportunity for a client to finance the work since everything was more expensive. Now the software that exists is cheap and this opens the door to explore new things so that the designer can move forward and learn more easily (Garrett, 1994).

Maggie and Bob Gordon say that there are several possibilities for using the most diverse technologies in the creation process. In the beginning, after having a briefing, keywords and concepts emerged that need research, which could be used the internet as an easy way to obtain information.

> "Although ideas are generated by the creative intellect, they normally need some form of reference to underpin them, as the imagination cannot always be relied on for accuracy. Access to the Internet is extremely useful for this purpose – the World Wide Web offers a vast storehouse of knowledge and visual references that can both inform and stimulate the design-making process" (Gordon & Gordon, 2005, p. 44)

Also, it could be used various softwares and other tools to find fonts, colors, and images. Even so, Maggie and Bob Gordon warn that when switching to the most diverse content creation software, it is necessary to take into account that they produce appealing results and that it is necessary even if it is visually good that there is substance behind the visual part (2005).

1.8 ARTIFICIAL INTELLIGENCE

The field of artificial intelligence is universal, as it encompasses several other activities. If it is an intellectual activity, artificial intelligence can be applied. A.I. is present in our daily lives, we live with it sometimes without even realizing it, and it has even proved over time that it is a growing field and with immense potential to improve human life. Because it is so global it is difficult to define, having several definitions and several subfields associated with it. In table 2 shows how Norvig and Russell divide the various definitions of artificial intelligence into two dimensions (reasoning and behavior), with four approaches.

Table 2. Adapted version of the scheme of Norvig and Russell (2010)

Thinking Humanly	Thinking Rationally
"The exciting new effort to make computers think... machines with minds, in the full and literal sense." (Haugeland, 1985) "[The automation of] activities that we associate with human thinking, activities such as decision-making, problem solving, learning..." (Bellman, 1978)	"The study of mental faculties through the use of computational models." (Charniak and McDermott, 1985) "The study of the computations that make it possible to perceive, reason, and act." (Winston, 1992)
Acting Humanly	**Acting Rationally**
"The art of creating machines that perform functions that require intelligence when performed by people." (Kurzweil,1990) "The study of how to make computers do things at which, at the moment, people are better." (Rich and Knight, 1991)	"Computational Intelligence is the study of the design of intelligent agents." (Poole et al., 1998) "AI... is concerned with intelligent behavior in artifacts." (Nilsson, 1998)

The field of artificial intelligence is as much about understanding knowledge as it is about creating that knowledge, and analyzing this chart by Norvig and Russell we can see this since there are definitions that tend more towards the perception and

understanding of knowledge while others, tend towards a more practical definition of artificial intelligence (2010).

Although it seems a recent thing, the first time this term was used was in 1956 by, McCarthy, Minsky, Claude Shannon, and Nathaniel Rochester when they presented a two-month workshop, which brought together ten men to study artificial intelligence. Even so, two other scientists ended up being associated with the term: Allen Newell and Herbert Simon. What distinguishes them is that Newell and Simon admitted that they already had a program capable of reasoning. Between 1952 and 1969 there was a great enthusiasm around artificial intelligence, and Simon even says that:

> "It is not my aim to surprise or shock you—but the simplest way I can summarize is to say that there are now in the world machines that can think, that can learn and that can create. Moreover, their ability to do these things is going to increase rapidly until – in a visible future - the range of problems they can handle will be coextensive with the range to which the human mind has been applied" (1957)

Despite the confidence shown in the first years of research and studies in the field of AI, the evolution seemed to be slow and without major success stories. The three causes for which they did not have the expected success were: the programs did not understand what is created to be done and were only successful through simple syntactic manipulations; they tried to solve difficult problems by methods that combined several steps until the solution was found but this made it difficult to find the solution; there were limitations in the basic structures that generated intelligent behavior.

Despite the difficulties and all the ups and downs in the evolution of AI, in 1980, the first AI system reached the industry. They gave it the name R1 and had the function of helping to configure orders for new systems for computers. From then on, several companies started to realize the value that AI could bring, since in this first company it saved them about 40$ million per year. So, more people started to invest in research in this area.

More recently, AI has finally managed to establish itself because it has adopted a scientific methodology to which all new programs are tested and compared. Now AI is a research field with several subfields that continue to grow while the large field of AI joins other areas, such as statistics and psychology (Norvig & Russell, 2010).

There are several types of artificial intelligence, the most common being Artificial Narrow Intelligence (ANI) and within this type are machine learning and Natural Language Processing. Two other types that are still just theories are Artificial General Intelligence (AGI) and Artificial Superintelligence (ASI) (Viebig, 2016). These are rarer due to three types of complexities that make it difficult to reach this advanced point of artificial intelligence: spatial, temporal, and human complexity.

To be able to evolve in this area, a large database is necessary. The computer does not know anything and cannot learn completely on its own without having a database so that it can transform this data into knowledge. One of the biggest problems that prevent the realization of an AGI or ASI is having computers that can support the size of the database necessary for the machine to reach this type of intelligence. In addition to the space occupied by these data, the time it would take to run could be too long. But perhaps the worst adversity is human complexity. The human being is not perfect and sometimes the algorithms can become so complicated that he will simply not be able to detect errors and thus will never be able to get the algorithms to do what he wants (Domingos, 2017).

One day, the ideal would be for the human being to achieve pure artificial intelligence. But for now, it continues to perfect ANI so that one day, it can move to a more complex artificial intelligence or even make an algorithm to solve the complexity problem.

1.9 MACHINE LEARNING

Pedro Domingos defines the algorithm as "a sequence of instructions that tells a computer what to do"[17] (2017, p. 25). These instructions must be clear, explaining to the algorithm what it is, and in what order it should do the task. Also, it must be written in a language that the computer understands, such as Java and Python. The purpose of this sequence of instructions given to the algorithms is a way to find a solution to a problem. There are different types of algorithms and sometimes the results of some algorithms are used by others to create new ones.

The algorithms consist of an input and an output. The input is the data, which is provided by the programmer and the algorithm will take that data and give an answer, this is called the output. In machine learning the algorithms work more independently, the programmer gives data and the desired answer, the algorithm takes these and creates other algorithms from the information it receives.

> "The learning algorithms are the seeds, the data is the soil and the programs learned are the adult plants. The machine learning expert is like a farmer who sows, irrigates and fertilizes the soil and is attentive to the health of the harvest, but who otherwise does not interfere."[18] (Domingos, 2017, p. 31)

In machine learning, the algorithms can be divided into three categories: supervised learning, unsupervised learning, and reinforcement learning. In supervised learning, someone must classify the data (put labels on them) that are inserted for him to learn. These placed labels taught the machine to distinguish one thing from the other, and if you insert several different pieces of information it will be able to make distinctions. This is mainly used for classification (separating information from each other) and

[17] "uma sequência de instruções que diz a um computador o que fazer." (Domingos, 2017, p.25)

[18] "Os algoritmos de aprendizagem são as sementes, os dados são o solo e os programas aprendidos são as plantas adultas. O perito em aprendizagem automática é como um agricultor que semeia, irriga e fertiliza o solo e fica atento à saúde da colheita, mas que, fora isso, não interfere." (Domingos, 2017, p.31)

regression (identifying values). In unsupervised learning, as the name implies, it will be the machine itself that finds similarities between the information it has and separates it without the need for a supervisor. In this case, there is no need for classification, being that creates groups according to the similarities of the information. This type of learning is used for clustering problems (to identify similarities between groups). In reinforcement learning, the machine will learn through trial and error, observing its environment, and realizing what is right and wrong (Sathya & Abraham, 2013).

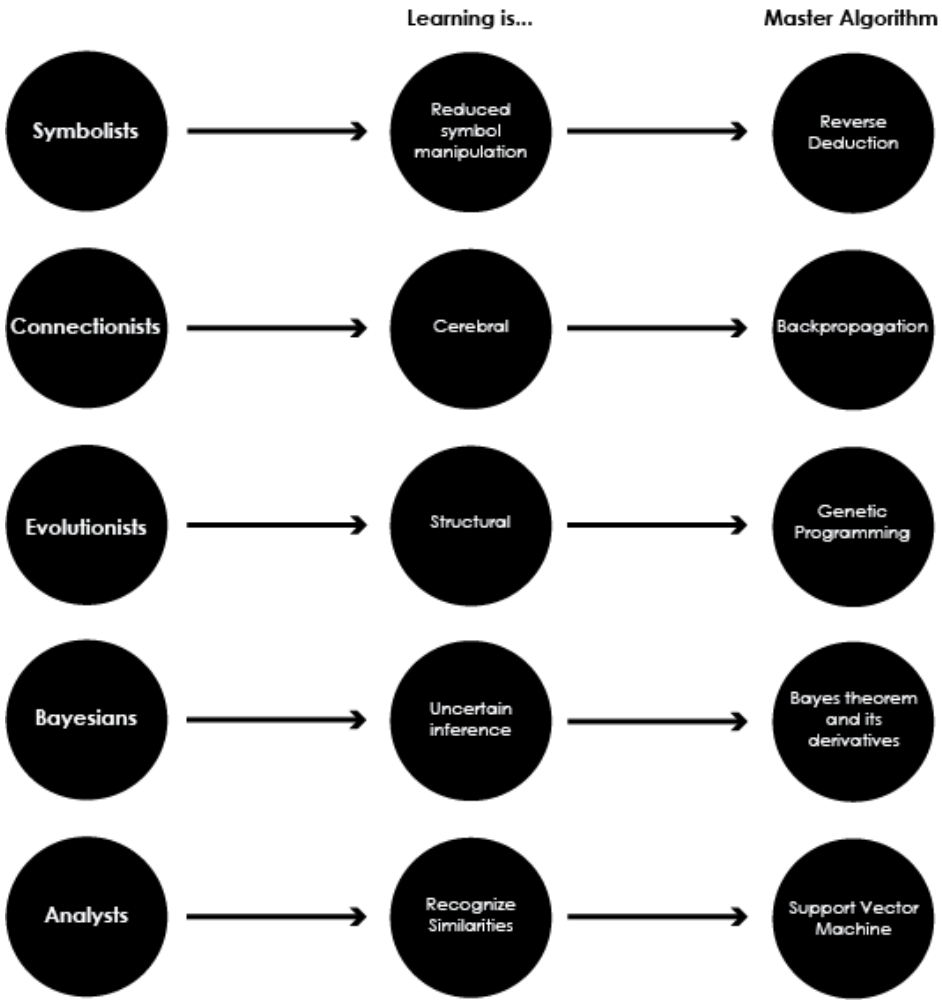

Fig. 13 Scheme based on the explanation of Pedro Domingos (2017)

The evolution of this area has happened over the years and supporting several studies in different areas. There are five main schools (fig. 13) of thought that have

dedicated themselves to this area: symbolists, connectionists, evolutionists, bayesians, analogists. Each of these dedicated themselves to studying and creating what would be, as Pedro Domingos says, the "master algorithm", an algorithm that would solve many of our problems today (2017).

Each school has a definition of what learning is, depending on its scientific field, and it is from that definition that it is based to create the master algorithm. Although they contribute to the progress of knowledge in machine learning, they do not quite find the algorithm that will solve all problems. Symbolists contributed to the solution to flexibly compose elements, evolutionists with a way to evolve structures, connectionists with a way to learn parameters, bayesians a way of considering the evidence, and analogists a solution for mapping new situations. Each school presents a part of the solution, now it is necessary to join all the parts to obtain the master algorithm. This is a good way to start but grouping all the parts together will not be easy (Domingos, 2017).

1.10 DEEP LEARNING AND NEURAL NETWORKS

Deep learning is one of the evolutions of machine learning, which uses complex artificial neural networks. Our brain has billions of neurons, which through synapses, establish connections between themselves and thus forming a complex network. Whereas "knowledge is stored in connections, between neurons"[19] (Domingos, 2017, p.118) so to create a computer that learns on its own we would have to create a network of artificial neurons. Computers have fewer transistors than the brain has neurons and still use more energy than the brain to process information. The big advantage that computers have that the brain doesn't have, is its ability to turn transistors on and off thousands of millions of times per second while our brain only has neurons firing thousands of times per second, which makes the brain slower, although it can be performing several actions simultaneously and the computer processes everything step by step.

The first artificial neuron did not learn, as it could only learn if it was assigned "variable weights to the connections between neurons, resulting in what is called a perceptron"[20] (Domingos, 2017, p.118). In 1943 the first artificial neuron was presented by Warren McCulloch and Walter Pitts, and it was only in 1950 that the perceptrons that enabled neurons to learn were made by Frank Rosenblatt. Perceptrons are the first network of artificial neurons and also the simplest ones, and since 1950, neuron networks have become increasingly complex and today it is difficult to keep up with all the developments in this area (Veen, 2016).

Because of this, Fjodor Van Veen, from the Asimov Institute, created a chart (fig. 13) with several neuron network architectures to make it easier to see how they evolved. Almost every day new ones are invented and that is why this chart can't have all existing architectures (Veen, 2016).

The chart makes it easier to see the evolution between perceptron (P) to, for example, a Capsule Network (CN) or a Deep convolutional inverse graphics networks (DCIGN). Although the goal will always be to try to make things simple because although the human brain is compared to the computer, the goal is not to create an artificial brain,

but rather an algorithm that we can use in various things that will make the life of the human being more simple without complicating problems, which in themselves are already complex. All this search for the "master algorithm" is not only a way to evolve in terms of technological knowledge but also a way of getting to know ourselves (Domingos, 2017).

[19] "o conhecimento é armazenado nas ligações, ou conexões, entre neurónios." (Domingos, 2017, p.118)

[20] "pesos variáveis às conexões entre neurónios, resultando naquilo a que se chama um percetrão". (Domingos, 2017)

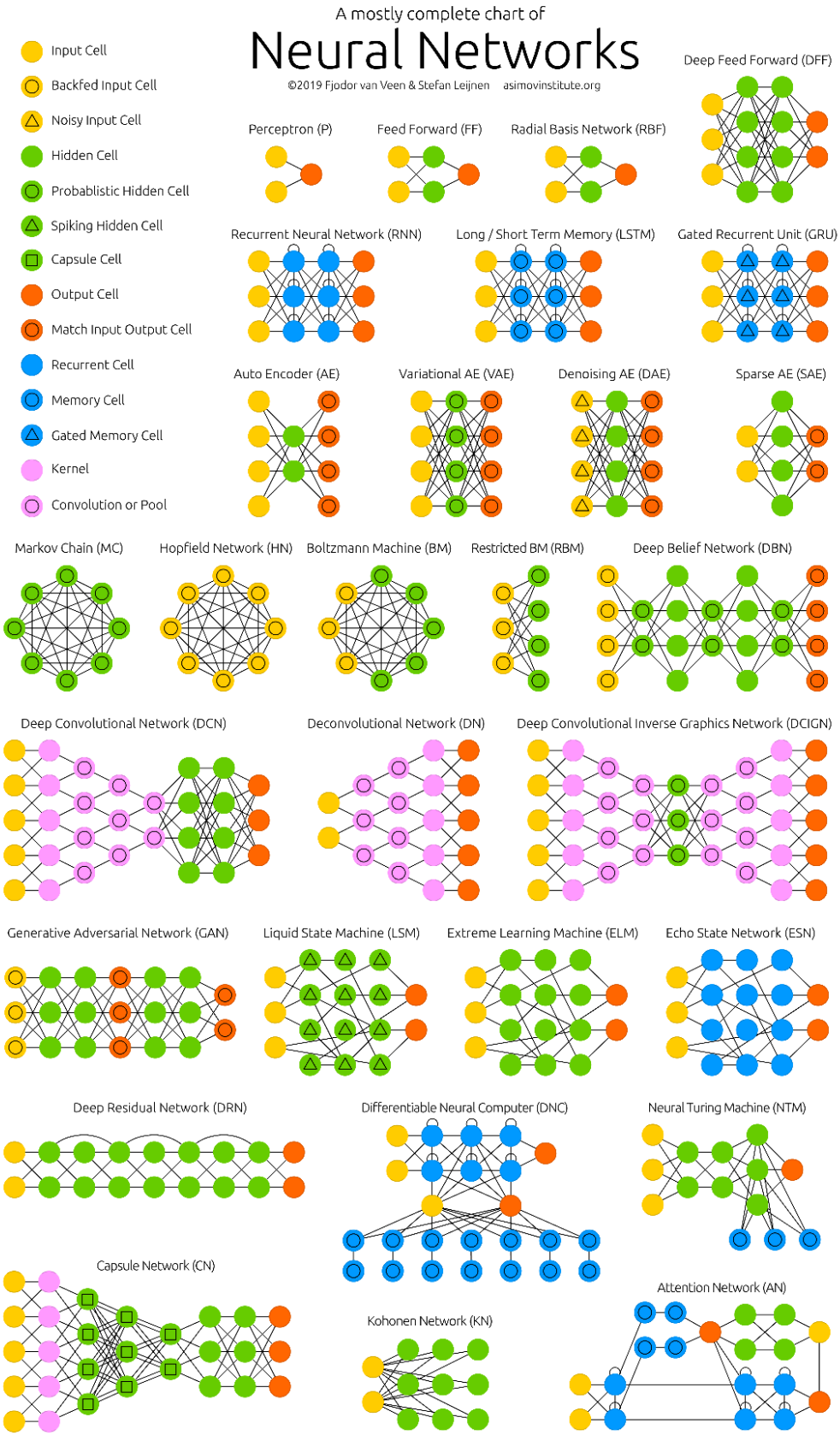

Fig. 14 The most complete chart of neural networks by Fjodor Van Veen. (2016)

1.11 AI IN GRAPHIC DESIGN

The possibility of using artificial intelligence as a tool in the design process has brought down some barriers and thereby inspired the designer to overcome himself. Although there is still no algorithm that does all the work of the designer, AI has helped in the evolution of the most diverse software, making it increasingly easy to use.

Adobe has long used AI for certain components in its most varied software, but it was around 2016 that it introduced an assistant that works with AI to help with more time-consuming tasks - Adobe Sensei. Scott Prevost, Adobe's Vice President of Engineering responsible for Sensei, in an interview talks about the possibilities that Sensei can bring saying that "we are blending human creativity with the science of data" (Annunziata, 2019). As the name implies, Adobe Sensei was created to be a sort of teacher (Sensei means teacher in Japanese), which helps to find the best way to achieve our goals. One of the biggest advantages that this technology introduced was in improving the image search, using Adobe Stock. In addition to allowing a detailed search, we can just drop a reference image and then define what are the characteristics we are looking for (composition, color scheme, contrast, etc.). It is also an essential tool in any research work as it makes it faster by showing the best results right away and thus leaving more space for the designer to focus on the creative part of the project. Over time, Adobe Sensei can become a teacher as it gets to understand us better:

> "it will be able to predict your next step and detect when you are getting frustrated or confused (we are human after all). It will then be able to suggest ways to improve your workflow; understand what effect you are trying to achieve and suggest techniques that have proved especially effective for other users; steer you towards software features that you have not yet discovered; suggest new skills that might boost your performance and show you how to acquire them (training videos, online courses)" (Annunziata, 2019)

Other possible applications for AI, in graphic design, ranging from the identification and creation of fonts, image editing to drawings and paintings made by algorithms.

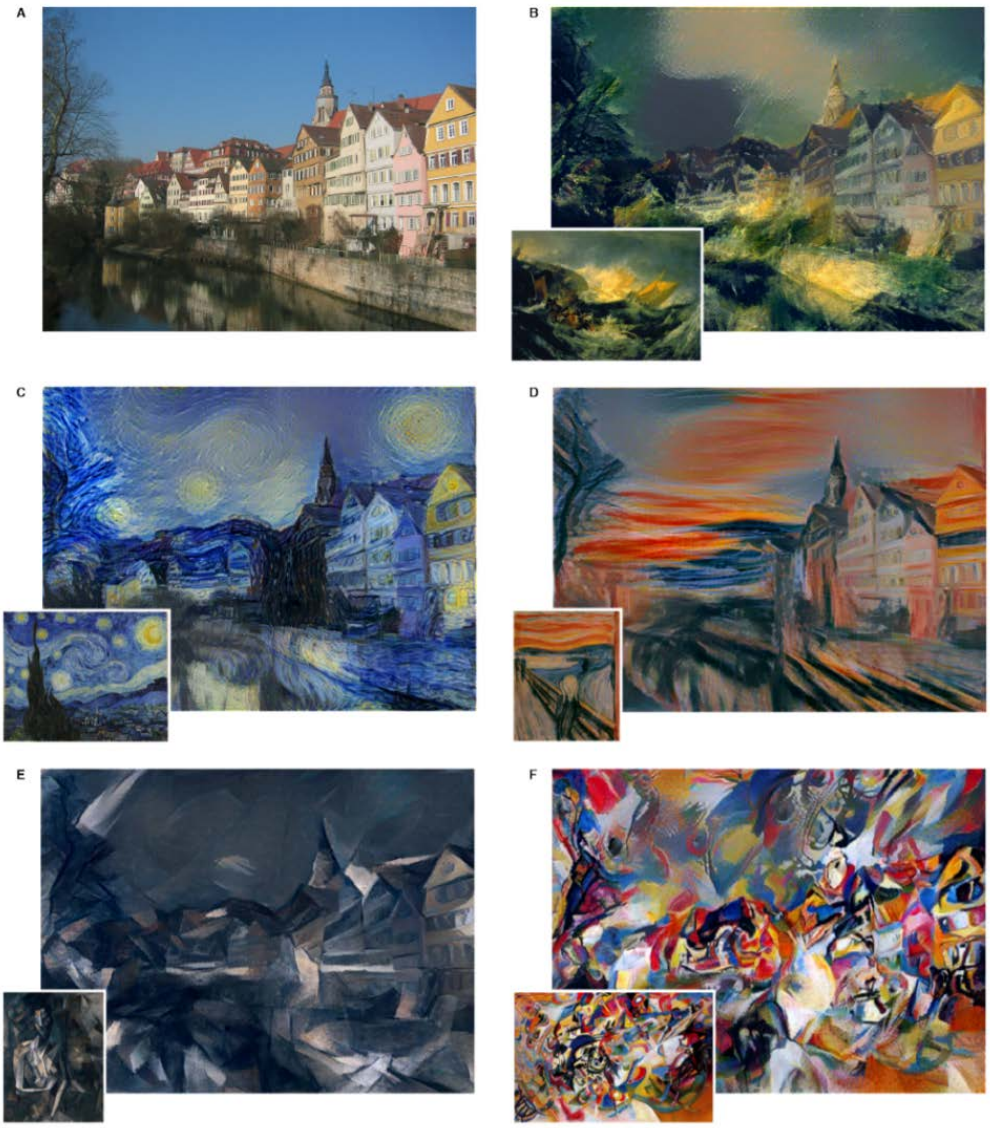

Fig. 15 Results obtained by Gatys et al., in which (A) is the reference image and the input is the images in the bottom corner (2015)

The possibility of transforming an image into a completely different style in a matter of seconds can bring benefits to the creative process. The image editing process can become time-consuming and tiring. Gatys et al., through a Deep Neural Network, transferred artistic styles from known painters to photographs. While the structure of the

photo is preserved, features of the artwork are included, such as colors and local structures (fig. 15). For that to happen, the deep neural network used is a convolutional neural network (CNN). They are trained to recognize objects by assigning importance to various objects in the image and thus can distinguish the elements in it. Gatys et al. also use a feature space to get the style of the input image (Gatys et al., 2015). Luan et al. are based on the research done by Gatys et al., but unlike Gatys et al. they try to apply to two photographs, to obtain photorealism in the final image (fig. 16). This aims to change the photograph overnight (or vice versa), the season, or a type of edition. Luan et al. using the neural style algorithm, they obtained photographs that looked like paintings. When using photographs, it is more complicated to preserve the structure and obtain "semantic accuracy and transfer faithfulness". That is, the final image must affect the colors, but not their geometry, and the semantics of the image must be maintained (Luan et al., 2017).

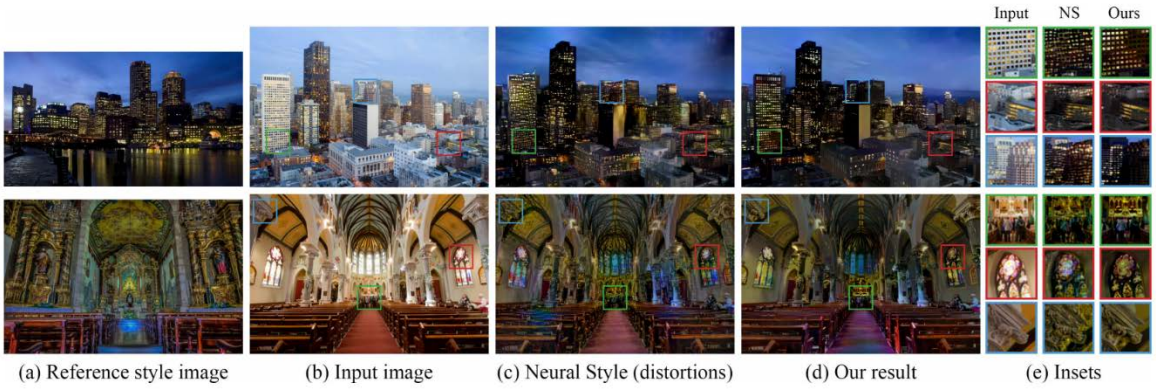

Fig. 16 Results obtained in the research of Luan et al. (2017)

Penhouet and Sanzenbacher took the research by Luan et al. and tried to get closer to photorealism using neural image assessment to improve the aesthetic values of the image. The way to obtain results closer to photorealism is through the introduction of "a constraint that prevents distortions in the content image and by applying the style transfer independently for semantically different parts of the images" (Penhouet & Sanzenbacher, 2019). While the results are becoming more and more similar to photorealism, these forms of image editing are becoming accessible to anyone. Several software and applications

transform photos into paintings, such as: Prisma; Dreamscope; DeepArt; NeuralStyle.Art; (Patkar, 2019) Visionist; Fotor; etc. (Patkar, 2018) Corel PaintShop Pro was also launched in 2019, a tool called Pic-to-Paint, which turns photos into paintings (Grigonis, n.d).

Another important component for creating graphic design is typography. Both identifying and creating new fonts can be a time-consuming process. Various font identification software is used by the designer when he needs to identify a font that he intends to use in his work. Software such as Identifont, MyFonts, WhatTheFont, Fontspring, etc., has helped in this identification process by comparing several fonts to each other. Still, it is difficult to identify fonts as there are hundreds of thousands in online repositories (Wang et al., 2015). Wang et al. took this problem and created a "VFR system for the Roman alphabets, based on the Convolutional neural networks (CNN), named DeepFont" (2015). This project starts with the introduction of several text images in the system and training the neural network on how to distinguish and recognize fonts. Also, to be a system capable of recognizing fonts, DeepFont can select, suggest, and measure similarities between fonts. It was made for Adobe, and someone with Photoshop or Typeset who has access to Creative Cloud also has access to this font identification technology (Wang et al., 2015).

Bernhardsson, also uses deep neural networks to analyze 50k fonts. These 50k fonts were taken from several online sites which meant that some were not well built, with a lack of lower-case versions or a lack of characters. Apart from that, the objective would be to obtain from these other variations and thus generate new fonts. Bernhardsson started by training the neural network so that it reproduced the same characters as existing fonts. Despite obtaining good results at this stage, the network gives up on reproducing the more complex characters. Since each font is a vector, Bernhardsson can choose a font vector and generate new fonts (fig.17). These new fonts are obtained if "we model the distruibution of font vectors as a multivariate normal" (Bernhardsson, 2016).

Although it was an experiment done in a short time, this could be the beginning of future studies in the scope of creating fonts through deep neural networks.

Other experiences made in the field of typography have been, for example, Font Map and FontJoy, the first is a map of 750 fonts created to understand the relationships between them and the second is a font generator that combines the fonts that look better together.

Fig. 17 Some Bernhardsson results. The character on the left is the input and the character on the right is the output. As we can see, the algorithm did not recreate the most complex characters, but the simplest ones were recreated very identical to the original. (Bernhardsson, 2016)

Some experiments have also been done to see if an algorithm can draw or replicate drawings in a natural way. Google Creative Lab has funded several of these experiments, from which Autodraw was born. Through machine learning, you can draw any type of scribble and the neural network suggests some more improved designs (2017). Similar to this, "Quick, Draw!" developed by Jonas Jongejan, Henry Rowley, Takashi Kawashima, Jongmin Kim, Nick Fox-Gieg with collaboration from Google Creative Lab and Data Arts Team. This is a game in which the neural network tries to guess what is being drawn. This

experience contributes to the continued training of the neural network so that it learns to recognize the drawings (2017).

1.12 LOGO GENERATION WITH AI

Yi-Na Li, Kang Zhang, and Dong-Jin Li use a "visual programming environment called Shape Grammar Interpreter (SGI) to generate abstract patterns." (Li et al., 2017) Shape grammars were invented by George Stiny and are a set of rules for transforming simple shapes to generate other shapes (Stiny, 1980). Li et al. used four essential shapes: a square; a circle; a quarter of a circle and a non-overlapping area of a quarter circle. With just these four shapes, they got 60 different new shapes and chose the one that caught their attention the most to create the final logo. This logo was given the name "Design 101" and even without having an initial semantic meaning the shape they chose reminded them of an owl, which ended up giving the logo a meaning (Li et al., 2017).

In turn, Alexander Sage, Eirikur Agustsson, Radu Timofte, Luc Van Gool, chose another method for generating logos "clustered GANs, that is GANs conditioned with synthetic labels obtained through clustering" (Sage et al., 2017). GANs stands for Generative Adversarial Networks, and as the name implies, they are two competing neural networks. This method was introduced by Ian Goodfellow in 2014 and has been useful in the generation of images and videos. These two networks are, a generator and a discriminator, that are trained competitively. The major disadvantage of GANs is that they are difficult to train since it is not enough to train two neural networks, but also to control the dynamics between them so that they are not unstable (Goodfellow et al., 2014). The likelihood of them becoming unstable increases with the improvement of the image resolution, which is why Sage et al., used synthetic labels to stabilize a resolution greater than 10X10. The use of these not only helps in stabilization but also "subsequently allow us to have some additional control over the generated logos by generating samples from individual clusters or transforming an particular logo to inherit the specific attributes of another cluster" (Sage et al., 2017).

Another project like this is the one that uses color as a conditional to generate logos, using information from the Large Logo Data (LLD) made by Sage et al. This project was done by Ajkel Mino and Gerasimos Spanakis and unlike Sage et. al., who used synthetic labels to organize the logos in clusters, Mino and Spanakis suggest the use of descriptive labels (color) so that they could give more flexibility than synthetic labels do not allow (Mino & Spanakis, 2018).

Oeldorf and Spanakis, try to increase the resolution and control over the results obtained in previous studies that had problems with these two parameters. For the label extraction, they used Google Vision API to extract 4 to 8 words that described the logos. After having these words, they were extracted to a quantitative space through a pre-trained Word2Vec model. Then, they use K-means clustering to separate the visual properties of the logos in various segments. This method was not very effective in separating the characteristics of the logos, and they had to do a second clustering approach. Even so, they conclude that "language-labels does not result in descriptions that define the visual characteristics of logos" (Oeldorf & Spanakis, 2019).

CHAPTER 2 – METHODOLOGY

Summary

The second chapter has presented the methodology used in the study and the reasons behind this choice. Also, it was introduced the research plan, that was divided into three parts, the research questions that this study aims to find answers, and the data collection. At the end of the chapter, an analysis is made of the interviews.

2.1 GOALS AND RESEARCH QUESTION

Much has been said about the possibility for the graphic designer to completely stop creating logos and let all this work be done by artificial intelligence. Although for now, it is all speculation, no logo generator really works as the designer, the possibility of this existing could be soon and there are already people working on ways to create this. Even though there are studies on the generation of logos through artificial intelligence, none of these seems to understand how a designer works, or how to create a logo. This study intends to contribute to this discussion, exploring hypotheses and reflecting on the best way to generate a logo through artificial intelligence that can be useful for designers.

There are two objectives with this work, the first being to contribute to the study of the generation of logos through artificial intelligence and second to understand how the designer works and whether there will be space for artificial intelligence in a designer's working methods. The design of the study on artificial intelligence raises many questions that remain unanswered. This work seeks to answer the research question: How can we generate logos through artificial intelligence?

This work will be divided into three secondary questions, which aims to help answer the main research question:

- Even though it is possible to generate logos through artificial intelligence, are these better or even equal to those made by designers?
- Will it be possible to completely or partially replace the designer of branding?
- Studying the capacity of artificial intelligence to design, can we learn more about design or even about the natural intelligence of human beings?

These are all questions that this study intends to answer despite recognizing that they will not be answered conclusively, but rather reflecting on them, creating ideas and hypotheses of an answer.

2.2 METHODOLOGY AND RESEARCH PLAN

This is a study that is carried out based on the qualitative research method. As it is intended to answer open-ended questions and as it concerns speculations about the near future, a qualitative research method makes sense since these are used when a more flexible structure is desired (Creswell, 2014). Research questions can evolve throughout the research, and we are not looking for conclusive answers so we can say that this is an exploratory or formative study (O'Grady & O'Grady, 2017).
It is intended, then, with this empirical work:

- Assess the need to use artificial intelligence applied to brand design;
- Understand if there is a way to apply a logo generator in the traditional methods of the designer;
- Check if the results obtained from the logo generator bring benefits to the designer or add any value;
- Analyze the hypothesis that the study of artificial intelligence associated with design may contribute to a learning of the real complexity of design.

As this is a recent topic and there is not much information written directly about it, it was necessary to study two different areas to merge the two and thus reach a conclusion. This study will then be divided into three parts:

One of the first phases is the literature review, which investigates books, articles, websites, publications, and other written documents that may be relevant to this study. The literature review is divided into two areas of study to be merged: design and artificial intelligence. In the first one, an attempt is made to have a better understanding of the history of design, more focused on logos, brands, and graphic identities. Each of these concepts is defined and a logo is also divided by each of its elements, characteristics, and types. In the second, the relationship between design and technology throughout history is analyzed, and concepts of what artificial intelligence is defined, what types exist, and what are the applications in design.

In a second phase, interviews are made with designers, to understand what their working methods are, how the relation of technology with design is changing and whether artificial intelligence may eventually replace the designer completely or partially.

In the third phase, to analyze the data collected previously, based on studies previously done on the generation of logos through artificial intelligence, a conceptual model for the generation of logos through artificial intelligence is created, based on the collection of data. Also, a reflection is made of possible implications that may occur due to the joining of these two areas.

2.3 DATA COLLECTION

Data collection was done through books, studies done previously, websites, documents, articles, and publications, but also interviews. It can be considered that there was then primary and secondary research. The primary data are the interviews that were made to designers and that were later analyzed. The secondary data were all documents, books, websites, etc., which served to solidify ideas and hypotheses.

2.3.1 INTERVIEWS

One of the methods of data collection chosen were the interviews that were made to graphic design professionals and carried out in person and by email. The interviews aimed to understand what the traditional methods of design were and how they were changing, as well as to understand how designers were adapting to these changes. It was suggested by Lawson that the design methods described in books were mostly written by those who never design and that was why it was difficult to prove that what was in the books was what was happening (2005). This was one of the factors that led to the realization of the interviews, to realize if the designers really work according to some method or if they even think about them at all.

The interviews were semi-structured, which means that there was an interview schedule (a list of questions) as well as an order in which the questions should be asked, although sometimes that order changed, or new questions arose as the conversation developed. The interviews were divided into two parts: in the first part, the working methods used by the interviewee were discussed; and in the second part, the interviewee was allowed to give his opinion on how he thinks that artificial intelligence can change the designer's profession, and it was still discussed how technology has so far changed the way of doing design according to the experience of each interviewee.

The interview was organized as suggested by Ranjit Kumar, who suggest that the interview should start with simpler themes (in this case, by the interviewee's working methods, which is something he does not need to think much about, he only reports what he does) and evolve into more complex themes (in this case, the conversation evolves to topics in which the interviewee had to reflect and/or create hypotheses about the future of design and how technology has been changing the way of doing design) (2011). For this, most questions were open-ended, so that the interviewee could give his opinion and obtain in-depth information.

The interview guide was always done in the same order, but sometimes there were minor changes to be made in specific cases, depending on who was being interviewed.

As most of the intended answers were supposed to be from or based on professional experience reports, some questions made more sense to some than others, and therefore there was a slight change in the script.

2.3.2 INTERVIEWS ANALYSIS

The interviewees were all graphic design professionals or involved in some way with advertising and brands. The people interviewed were:

- Fernando Mendes, Designer, Design Researcher, and Coworking founder;
- Fernando Oliveira, Teacher, Design Researcher, and Freelancer Graphic Designer;
- Pedro Magalhães, Executive Creative Director;
- Rita Murias, Freelancer Graphic Designer

The first part of the interview was about the methods that each use. When the most general question was asked, three of the interviewees started by describing their method, all of whom said that they started by researching what they were going to work on. Typography is still referred to as one of the most important parts, to which Rita Murias and Fernando Mendes refer that for them often comes before the graphic image. Only one of the interviewees admits to not having any method. This says that each case is a case and that the design methods are adapted to each project. Even so, he says that he meets with the team that is going to work on a project, everyone receives the information and then each one goes to his side to think about solutions that might result in that project, and later they meet again and come back to discuss it. Pedro Magalhães says that it is a chaotic process, there is no order, but there are strategies such as understanding what the purpose of the brand is, what it means, etc., that can help in creating a graphic solution for the brand. In this first question, we can conclude that everyone starts by trying to understand what the brand is and what path to follow. As it was already verified, in table

1., discovering and understanding the problem that it has to solve seems to be something common in all design methods and no one does not mention it.

When asked the question about the phase that they spend the most time on, everyone mentions the first phases again. Something changes when they are faced with the question of the time given to them by the client for work, and they even admit that it is this phase of research that suffers some cuts because there is simply not enough time to give it due attention. Fernando Oliveira says that when unrealistic times are given for a project he advances with a proposal for "fast design" that is based on his experience in the area. Despite this, everyone agrees on this issue that they can make good projects in a short time, but to make projects that differ from others already on the market, it is necessary that the time given for the project is realistic and that it gives the designers time to do the necessary research to find elements of differentiation. Fernando Mendes concludes this question of time by saying that acceleration is not synonymous with quality.

During all these processes and the designer working for a client, the question is asked whether there is a personal brand of the designer in all the work he does. And also, in this question, everyone answers that there is a personal part, but they approached the question in different ways. Fernando Mendes says that the designer distinguishes himself from the artist for doing work for others and not for himself but admits that there are more and more hybrid areas of performance. Fernando Oliveira justifies this personal brand even at work for clients as a reflection of the learning that each designer will have throughout his life and that will remain in all the work he does. Rita Murias admits that sometimes the personal part of the designer is even visible because we can distinguish designer work just by looking at the projects. She also says that when you work for a company, where several people are involved in a project, sometimes you still look at the final project, as if it is a little bit of all those people who worked on it. There is this human part of getting carried away by projects, we work on them as if they were ours and, in the end, a part of us stayed on that project. Pedro Magalhães supports this idea, using the expression "you create with your guts", as he admits that most people who work in

creative areas, work with intensity and therefore leaving their mark on all projects. Even so, he says it is necessary not to create emotional bonds with the ideas created, as these often end up being changed and rejected by customers. Customers, too, find it difficult to understand that a brand is not for them but a greater identity and therefore cannot be carried away by personal taste.

Thus, we have an answer based more on history and form, with design and art often remaining linked and that there is a fine line between these two areas. Another answer is based on the idea that the designer's experience changes the way he works, giving the idea that the same briefing is approached differently by different designers depending on their experience and what they are learning. Sometimes this experience is visible and therefore we have another approach to the question focused on the similarities that designers present from project to project. Another approach is in the way we create with the heart and that is why a project is a reflection of the designer's dedication and commitment and that is the mark left by him. In the end, all the answers seem to lead us to the conclusion that even if one tries to place design as a rational discipline guided by logic, it will always have a human part. In the interview with Fernando Oliveira, he is asked whether he thinks that the designer's working method tends to become more and more rational, to which he says that it is necessary to make rational choices throughout the process but in the end, it is the emotional part, the human part, which adds very important elements to the project. Pedro Magalhães warns that design is communication, brands are worked on and managed by human beings, so they are a conversation between human beings. There is something we want to communicate, we want people to identify with brands and to feel something when they see them, it is human and only humans understand.

One of the questions was about how the way of doing design is changing so far, how the computer and in turn the internet came to influence the work of the designer. In this one too, similar responses were obtained, and everyone sees evolution with advantages, but also with disadvantages. Three of the interviewees refer to the internet as a good place to find ideas, inspirations, for easier research but also mention that you

cannot get too attached to them or do very superficial research. Since the issue was also raised of the works being very similar to each other due to the internet, which can be justified by lack of investigation and a certain superficiality. But it is also mentioned by Pedro Magalhães, that sometimes is given privilege to the medium and not the idea. He says that the real change in the way the designer works did not happen at the end of the century. But it happened more recently about 5 to 10 years ago. When he did a big campaign for a brand it consisted of television, print, billboards, and radio, while now virtually all of these media are devalued especially radio. The technology is highly valued by some companies and he says that they probably forget that anyone can use the same technology and is the idea that makes the project different. Fernando Mendes touches on another issue, saying that the computer has come to democratize the tools used by designers, with the idea that anyone can do the work of a designer. Since he clarifies that even though this idea exists, it is not true, as it lacks the specific knowledge, vision, and culture of a professional designer and approach methodologies. He shows disregard for the idea that artificial intelligence can then replace the designer totally or partially, saying that probably a designer's profession will change to the highest levels of decision. The remaining interviewed answer that it is a possibility, at least partially, or in the improvement of some tools used by designers. Here again, the question of the human part that is very present in the design is raised, which they believe cannot be replaced.

For the consolidation of the interview, the question was asked about the greatest competence of the designer and the importance of drawing in design. There is a common idea that knowing how to draw is an advantage for the designer, but it is not mandatory to be a designer. Only Fernando Mendes considers drawing the greatest competence of the designer, saying that the ability to explore complex ideas through visual representation simplifying them is what distinguishes designers from other professionals. Both Fernando Oliveira, Pedro Magalhães, and Rita Murias admit that it is the head, the way of thinking, how to respond to problems, the creativity that is the greatest competence of the designer, but confess that the drawing brings a facility to materialize ideas that is very important and helps a lot.

What is taken from the interviews is:

- The methods mentioned by different authors, in the previous chapter, do not seem very different from those used in a real context, they are often not linear and it is even a chaotic method, as Lawson says it seems that the definition of the problem and the solution for this is something that comes at the same time.
- The demand for a consumer market that forces brands to constantly compete to stand out from each other, makes them have to ask for more speed in solutions that do not translate into quality or good design projects.
- The first phases of defining and researching a problem are the ones that take the most time on the part of the designer, but they are also the ones that they consider important for greater differentiation between projects.
- The hypothesis that the designer can be completely replaced by artificial intelligence does not seem to be a hypothesis taken seriously, since no one believes that it may be possible. Even so, they admit that it may improve some parts of the process, such as the improvement of tools already used by other designers and the possibility of creating new ones.
- There is a human part to design projects, left by our experience, by our vision of a society, by our commitment and dedication to the project.
- Design is a conversation made by humans, to be understood by humans. Even though done by algorithms, there must always be a human behind it.
- The designer's greatest competence is creativity, even if drawing is an asset.

CHAPTER 3 – CONCEPTUAL PROPOSAL

Summary

In this chapter, all the data previously collected are analyzed, to make conclusions. After that, a conceptual model for the generation of logos through artificial intelligence and also a model for the characterization of logos is presented.

3.1 DATA ANALYSIS

As mentioned before, all the studies done to generate logos have the common aim of simplifying the work of the designer and to make the process of creating logos faster. Even so, they are aware that creating an algorithm for creating logos is not an easy task. Pedro Domingos says that for the algorithm to result in useful solutions, it must have precise instructions on what it is and what order it must follow to find the solution (2017). On the contrary, for the creation of a good logo, it is difficult to find a concrete definition because it can depend on many factors and even if there are some basic rules, it does not mean that designers are always following them since the entire creation process of a logo will depend on several variables. Adding this to what Domingos says is a successful algorithm, we conclude that creating this logo generator can be a complex task. Sage et al. say that the logos present difficulties for the generative models due to their multimodal characteristics and that, besides, they are difficult to label, as they are designed to be unique and present several visual characteristics. Despite this, they say that there is a demand for a logo generator because its creation process is expensive. Even though this is a complex task for generative models, the truth is that it makes sense to study this possibility of generating logos as it can bring advantages to the designer (Sage et al., 2018).

Li et al. although they created a form generator that they transformed into a logo, it was limited to the four forms and had no semantic meaning or specific briefing that the algorithm had to follow, thus resulting in several abstract forms. Even if these abstract forms have resulted in a logo, it does not mean that they result in other cases, nor does it

contribute to facilitating the method of creating logos. The designer always has a meaning, a reason for shapes to be the way they are. Even abstract forms convey the values of the company, service, or product and have meaning. The project by Li et al. presents the creation of a logo as if a designer started by designing a logo without talking to the client, without knowing which company, service, or product for which the logo will be designed and without any feedback on the company's objectives and values. That said, this is not one of the projects that contribute to the creation of an algorithm that helps the designer in the process of creating logos since, the designer never starts to design a logo by its essential shapes (circles, squares, triangles, etc.). After talking to the client, he starts to draw, but what he has in mind is not what forms to use, but how to meet the requirements of the briefing visually, regardless of the form that he ended up taking.

That said, the work of Sage et. al., Mino and Spanakis, Oeldorf and Spanakis have a major contribution to the creation of an algorithm that generates logos. All of these projects use generative models which can be one of the reasons for being more successful. There are two types of generative models that are the most used: Variational Autoencoders (VAEs) and Generative Adversarial Networks (GANs). VAEs produce blurry outputs while GANs as mentioned before are difficult to train, but they produce high-quality images. These three projects improve the architecture of the GANs for easier training and thus overcome the disadvantages of this generative model without having to use VAEs that will cause poorly readable results (Sage et al., 2018).

One of the first contributions to the creation of a logo generator is the Large Logo Dataset (LLD) created by Sage et al. The LLD is a good basis for the success of a logo generator, as it contains 600k + logos. Even so, the use of a characteristic that gave rise to other forms was made by Mino and Spanakis who used color as a condition in the creation of a logo. Although they did it, color is still a very ambiguous feature to be useful for the designer's creation process, since color can have several different meanings and it is not the only feature that it has to take into account. We assume that if the client only wants a blue logo, the designer could use this algorithm to generate several blue logos, but even so, they could not add any value, since these blue logos are generated from other blue

logos, but they can be either hospitals, drinks, schools or gyms. And a logo that works for a hospital will not be the one that works for a drink, and this is what the algorithm is still unaware of, it is just programmed to organize blue logos from the most diverse sectors and create others that are also blue. Even so, Oeldorf and Spanakis consider the conditions to be important for the generation of unique logos. They say that the following unconditional model generates simple and similar logos to those that already exist, but conditional models can generate nonsensical output, but even so, they compensate for their unique characteristics. Oeldorf and Spanakis, managed to improve the studies done previously, in the sense that, they obtained results with a resolution four times higher. They also conclude that the way to obtain detailed logo synthesis is to give the generative model high-quality information (Oeldorf & Spanakis, 2019).

There are two main ideas for the success of the logo generator that we can take from the data analysis:

- Finding ways to characterize logos more efficiently will be essential to obtain good results;
- Using conditional models seems to generate the best results, although they can also generate nonsensical output.

From these two ideas, we can get a sense of how to improve the generation of logos. So, it seems that the best way is to generate logos through a generative adversarial neural network with some conditions. It seems that observing other studies done previously, the problem is not in generating logos but in generating good logos and one of the causes for this to happen is the conditioning factors.

The problem mentioned by Sage et al., about logos being complicated to label due to their "very few categorical properties" (2017), it is repeated in the two works done after that, the chosen conditions are still not good enough to reach good outputs.

3.2 LOGO CHARACTERISTICS

Labeling logos has been a major problem in most studies done previously. One of the great difficulties that exist is organizing the logos in boxes labeled by characteristics so that the algorithm can understand what each shape is, what types of logos exist, what sectors they cover, what shapes and colors are common to the various themes, what can represent and what kind of message they can convey. By placing several pre-existing logos in the information given to the algorithm so that it can learn from it, it helps a lot to start organizing them. Only after this organization is it able to produce new results depending on the characteristics by which the designer needs depending on the case.

Sage et al., and other studies done so far, have not taken into account that there are several types of logos. As mentioned in the historical framework, there are: Wordmarks or logotypes; Lettermarks; Symbol Marks; Combination mark. Of these four types mentioned above, only symbol marks work without typography. This is relevant because of the 600k + logos collected (LLD) by Sage et al., they don't take this into account, as most of these logos have been collected with typography. The algorithm did not learn to distinguish what was symbols from what was typography and ended up reading everything as if they were images, ending up with confusing results, since if we zoom in, what they call logos end up being only scribbles.

With that said, and taking into account that Oeldorf and Spanakis conclude that it is necessary to provide the generative model with high-quality information (2019), then we must make a more detailed collection of logos, which includes only symbol marks (some of them are symbol marks with alphabetic forms), with labels so that the algorithm better understand what it is about.

It was then made a collection of 235 logos, and each of these was given five labels. They were classified by type; form; color; movement; industry or activity.

- The type was divided into: Figurative; Abstract; Alphabetical
- The shape was divided into: Geometric; Organic; Random

- The color was divided into: Monochromatic and Polychromatic
- The movement was divided into: Static and Dynamic

The types of logos, as mentioned before, will only be symbol marks so we used the nomenclature established by Frutiger for symbols, in which he says that there are three types of symbols: abstract (which are part of the figurative symbols but with a more complicated identification); figurative (they are symbols of quick identification that exist around us, like objects or living beings); alphabetic (they are symbols that derive from alphabetic forms) (2007).

To classify the shape of a logo, Leborg's nomenclature was used in which it divides into three types: geometric (based on mathematical facts about points and lines, etc.); organic (they are made or based on living organisms); random (created through the unconscious action of human beings) (2015).

All logos have (or should have) a monochrome version. So, to label instead of making a list of colors, it was decided to only put if it was monochrome or polychromatic. This decision was made to simplify something that is already complex in itself, and as already seen in the study by Mino and Spanakis who use color to label logos (Mino & Spanakis, 2018), the color further complicates as there are logos that have more than one color.

The movements in logos have been used more and more and so it made sense to get a label for this feature. When referring to dynamic, in this context it does not refer to the animation of static logos, but to logos that constantly change according to their application.

The last characteristic is what type of industry, sector or activity are the logos inserted. This is an important feature as it not only allows us to perceive the similarities between logos of the same industry, but it may be important for future studies to be able to separate the logos by industries and put the generative model only to create logos for industry, sector or activity in specific.

3.3 CONCEPTUAL PROPOSAL

In this study, the conceptual proposal is then to use the studies done previously (Sage et al.) as a base, and experimented, through a conditional model of characteristics for logos, which results better. Also, for now, none of the studies done previously focus on finding one good logo but rather try to generate several logos without any initial briefing. It would be interesting to be able to explore the idea of starting with a briefing and trying to generate a good logo according to that briefing.

Inserting the model of logo characteristics, described in the previous chapter, the generator would have the necessary information to organize the logos according to the characteristics, so depending on the briefing the output would be generated based on these sets.

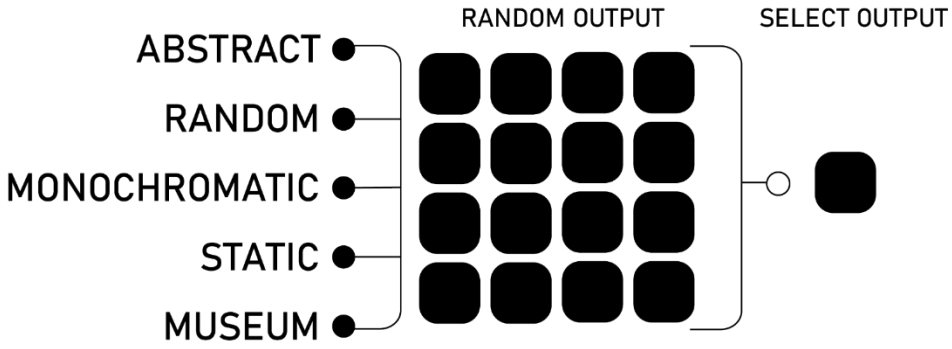

Fig. 18 Simplified scheme of the process. The chosen characteristics give rise to random output that will be selected later, just one logo (probably selected by the designer)

A fictional briefing was developed for a contemporary art museum in Lisbon (in annex IV), taking into account this briefing and the characteristics of the logos outlined in the previous chapter, we would, for example, have to choose: abstract; random; monochromatic; static; museum (fig. 18).

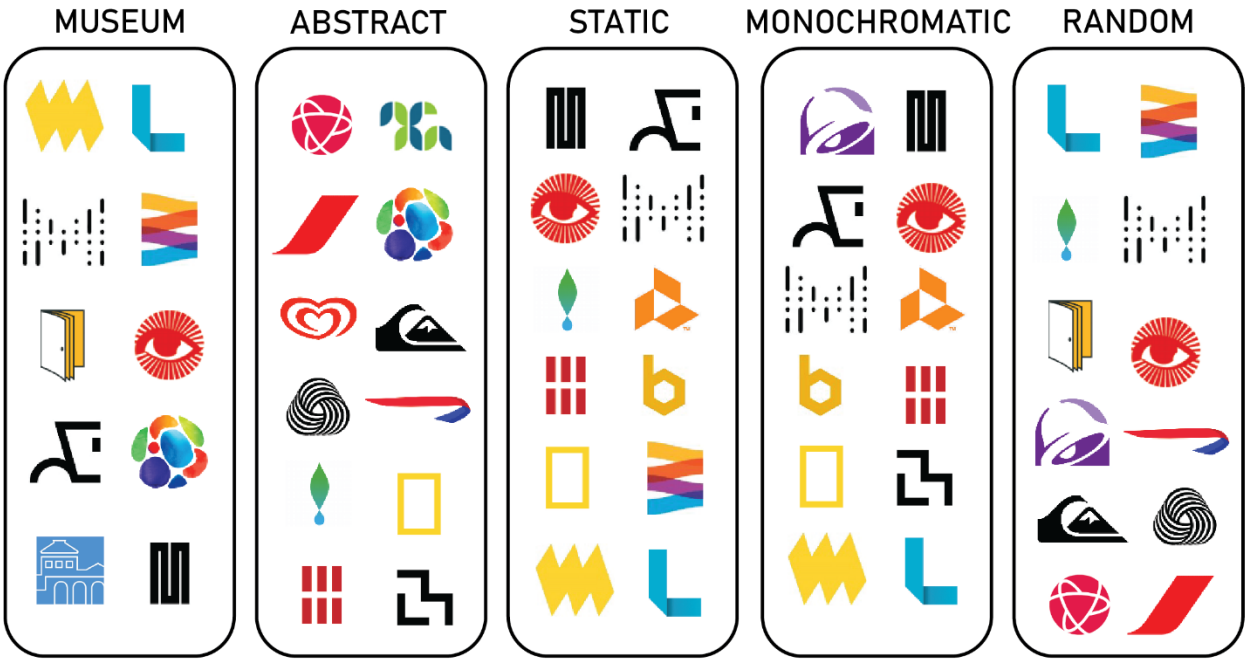

Fig. 19 The generative model will have to group the logos by categories in order to learn what each of these means. The image shows an example of the organization that the generative model will do

The last two characteristics (movement and industry) are logical choices, the movement chosen to be static so as not to further complicate the generative model and the industry is chosen according to the briefing. One of the most important features is the shape of the logo. In this example, random is chosen, because in the briefing words like "modern" are presented that can convey the idea that the logo would have to be more geometric, but as words like "fun" and "creative" are also presented there already conveys the idea of something more random, so that was the option chosen. Both the color and the type may change as we go through the results.

The generative model will organize the existing logos in the characteristics (fig. 19) indicated and thus from these will create several outputs.

CHAPTER 4 – NEW METHODS OF DESIGN: DISCUSSION

Summary

In this chapter, we discuss what the new design methods may be and how the union between artificial intelligence and logo design can be made. Analyzing the data collected in the previous chapters and mixing with some studies made in ways of evaluating logos and other forms of visual arts, and studies that approach creativity in artificial intelligence.

4.1 NEW METHODS OF DESIGN: DISCUSSION AND OPEN ISSUES

The methods used by design in the 20th century and those used now cannot be the same, as our society has changed. Right now, it's not about asking if we need artificial intelligence in design, but how to make the relationship between artificial intelligence and designer work.

Wiedemann explains that the brands left the consumer lost in the diversity of new products that are launched every day to the market. Brands struggle to be seen and attract attention, so the designer will have to accelerate the pace that develops ideas (Wiedemann, 2009). This society described by Wiedemann needs artificial intelligence to allow the designer not to have to take unnecessary steps to arrive at the final product. AI can make the designer faster and allow him to work with efficiency. The changes are already taking place in the way the designer works since he only needs a computer to be able to do must of his work. The computer, and the internet, in turn, have forever changed the way not only how design is done, but also how it is seen by people around the world. Bob Gill, talks about his change in methods saying that before he divided his project time equally between the problem definition phase and the creation phase, and now he spends most of his time in the problem definition phase:

> "Now for a designer to make a living, they have to do more than just know how to set some type because the client can do that. So what's left? Well the most wonderful part is left, which is to discover how you say new things. I often talk about design as idea; I am not interested in design as layout – obviously I have to lay things out in order for them to be read – but it's very low down on my priorities. I spend the majority of my time having an opinion and trying to invent an image that says that opinion like nobody's ever said it before. That's the fun of it." (1999)

So, it seems that the designer's focus has changed, and as already seen in table 1., designers take a large part of their time for the analysis, formalization, and problem definition phase. In the interviews, most of the designers say that these phases are the most important for brand differentiation.

K. Zhang defends that the introduction of artificial intelligence in design will not only allow for a reduction in the time spent on carrying out a project (due to software and new fast ways of doing design) but will also lower the amount spent on the project and increase its reliability (2017). Several other studies, previously mentioned, have also said the same or very similar factors for the merge between artificial intelligence and design. But they don't clarify how this is possible, because none of these studies have been tested in a real-life context.

If we go back in time and think about all the machines invented by humans, we realize that "laziness is the engine of progress (…) the principle is to achieve the goal, not only without physical fatigue but also with greater precision"[21] (Munari, 2006, p.74-75). Perhaps this is why the most time-consuming tasks end up being the first to be automated. So, it seems that the main reason is to reduce the time spent on these activities, justifying with the argument that the designer will have more time to focus on the concept of the project.

[21]"A preguiça é o motor do progresso (…) o princípio é atingir o objetivo, não só sem fadiga física, mas também com maior precisão" (Munari, 2006, p. 74-75)

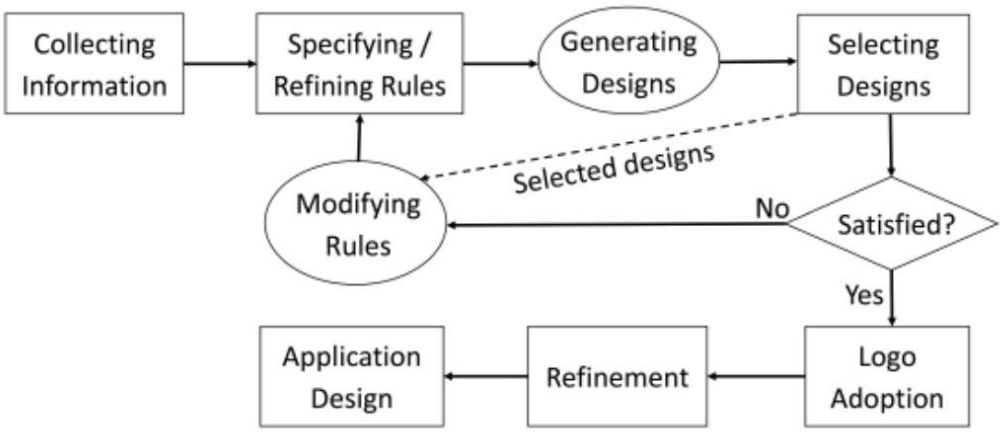

Fig. 20 Logo Design Process by Zhang et al.

Zhang et al., suggest a design method (fig. 20) in which the automatic or semi-automatic phases are: design generation and rules learning and modification. The designer presents the problem and automatically the system generates a large number of options from which he can choose, if none is what he was looking for, he again defines new rules and modifications for the system to better learn what the problem is. That way, it always generates new designs and the designer can always adjust the rules so that he gets closer to the favorable result. When it comes to this, it is the designer who does the rest of the process, refining the result and making the final applications. Although it seems that this method removes the creative part from the designer, since he only has to put what he wants on the computer and let the results appear, Zhang et al. argue that this method promotes creativity does not take it away. What the algorithm produces will only be results based on the designer's preferred styles, thus suggesting several ways that can help save time that will be used for him to think about the problem and unfold it to find creative solutions (2017).

What can complicate things (at least in this project by Zhang et al.), is that all forms produced by the computer will be useless to the designer since he puts basic characteristics (such as, color and shapes) and from this, he creates the idea and then the final design. This can make creativity limited to forms, distracting the designer from the "bright idea". But Bohnacker et al., suggest that the idea comes before the introduction of the algorithms. In this design generation process, it starts from an abstract idea and

becomes formalized with the designer's interaction with the system (2012). Bohnacker et al. such as Zhang et al. suggest teamwork between humans and machines, being that the human puts the ideas and the algorithm will give several results that ended up being worked by the designer in the final stage. That is, all the creative part will be the designer, the person in charge. These methods may work, but they would be removing the designer from the practical part of a project, with Zhang et al., they only put the designer to make improvements at the end of the project. In theory, these methods make sense, but in practice, no studies have been done to prove that the designer will succeed if he wants to make a project using this type of methodology.

If we imagine a designer, who was given a briefing, he will probably start by generating several ideas himself. In these initial moments, there is not much organization in thought, some rules are ignored, and ideas may appear that seem even impossible or unrealistic. The design method is chaotic, especially in the idea formalization process. All ideas are valid and only later in a refinement phase, the designer goes to the details and look for more solid ideas. If the designer does not have a solid idea, it will be complicated to explain to the algorithm what it wants. And even if he chooses only one of the several ideas and introduces them one by one and changes rules for the algorithm to generate, won't it take more time than if he were just himself to represent them quickly by sketching? Also, drawing for the designer is a way of communicating with himself. That is, through drawings, he unfolds ideas and creates new ones, it is also a way for him to visualize his thoughts (Cross, 1998). It's a very natural thing to humans, and especially designers, to write down or draw ideas, we can't trust our minds to save our ideas because they probably fade away. In the interviews made most designers seem to agree that even if drawing is not the most important ability of the designer, is an advantage to him.

In the method of Zhang et al., instead of taking steps away from the traditional methods used by the designer, it ends up having the opposite effect, as they put one more step that may or may not bring benefits to the designer. Coming back to the idea that AI should be applied to the most time-consuming phases, it should be more logical to apply new methods to analysis, formalization, and problem definition phases than to try to

change the practical part of the design. Based on the research done previously all designers agree that these are the phases that take more time but also the more important phases to brand differentiation.

Design, and logo design, in particular, is a difficult area to apply AI, since is connected to problem-solving and creativity. If we consider intelligence "as a general mental ability for reasoning, problem-solving, and learning. Because of its general nature, intelligence integrates cognitive functions such as perception, attention, memory, language, or planning" (Colom et al., 2010) so artificial intelligence should be an artificial neural network with all these abilities. As analyzed in the literature review, artificial intelligence doesn't exist yet, only a type called artificial narrow intelligence that focuses on restrict activities and serves mainly as a way to test if one-day artificial intelligence could exist.

The first time they asked the question "Can machines think?" was in 1950 by A.M.Turing, who became known for the imitation game, which later became known for the Turing Test. It was a game with three people, a man (A), a woman (B), and an interrogator. The objective was for the interrogator to find out the sex of A and B since they were separated in different rooms and the interrogator asked only questions to try to find out. (A) aims to make the interrogator confused by his answers and (B) has to answer sincerely (Turing, 1950). Although many scientists gave the test a pass, many also came to criticize since it was a game won through manipulation. Bringsjord, Bello, and Ferrucci created a test that also intended to answer the same question, but the goal was for the intelligent system to create a concept for a work of art, this test was called the "Lovelace Test". They not only wanted to see if machines could think, but they wanted to go further, relying on Lady Lovelace's criticism of the Turing Test, to which she thought that machines cannot create anything new, they just create what we say them to create. So Bringsjord, Bello, and Ferrucci created a test to see if the machines could create by themselves (Bringsjord et al., 2001). Riedl introduces a new approach to assess "the creativity of an agent with respect to well-defined types of artifacts" (2014). In this test, there is a human behind the computer who will judge the AI's response. He makes two

requests: in the first, he asks for a creative artifact and in the second he asks him more specifically what kind of artifact he wants. For example, in the first task, he asks it to write a poem and in the second task, he asks it for a poem about elephants. What differentiates this test from previous tests is that there isn't a question for AI to fail or pass, only a score is assigned. Turning out to be a comparison test to see which AI is most creative (Riedl, 2014). But in an interview with Riedl, he admits to separating creativity from aesthetically pleasing, saying that he was not concerned with the results not being worthy of a professional artist, because for that he would already have to be testing super-intelligence systems (M. O. Riedl, 2014).

Since the days of the Turing Test more and more studies have been done that try to apply A.I. to almost everything. From music, visual arts, playing chess, writing poetry and plays, many studies have been done to create algorithms to reproduce all these activities. The question that remains is: if artificial intelligence would be something that would help human beings to complete activities that are complex and considered difficult for them, why are we now trying to make them do activities that are fun and considered leisure for humans? Maybe to seek some type of artificial intelligence we need to start with one of the most difficult parts of the human mind: to understand which is the parts that relate to creativity and intuition.

Art students in their early years imitate other artists to learn techniques and develop their style by realizing what they like. Perhaps we need to do the same in AI. Cross says that maybe the way to get to know each other is to build artificial intelligence to understand what natural intelligence is. And the only way to build artificial intelligence is by realizing how natural intelligence works (Cross, 1998). As we stand outside the equation and observe the algorithm to imitate Rembrandt, we can find clues to how our natural intelligence works. This would be a work of the human with the machine, while we both become “art students” and try to understand where our natural intelligence comes from while the machine learns techniques and becomes closer to the human. This may or may not work and for now, this technique has not yet shown great results from what we say we can do through artificial intelligence. In the study of man versus machine

playing chess, (*Deep Blue*, 1997) the results revealed that nothing was discovered about man's natural intelligence. They managed to put a machine to play chess and thus proved that the machine can calculate moves, but since chess is a game based on logic and not intuition, it adds nothing if the machine can have natural intelligence (Cross, 1998). So far, artificial neural networks have just proved to be very good at appearing intelligent.

Adapt the question of "Can machines think?" for "Can machines design?" it is even more complex because the design is linked to the creative cognitive act (Cross, 2006), and testing thinking related to intelligence is different from testing creativity since a test to evaluate intelligence seeks logical answers and there is only one right answer while tests to evaluate creativity have more than one right answer (Lawson, 2005).

One of the problems that arise from trying to apply AI to design is that all visual arts use qualitative methods in their evaluation (J. Zhang et al., 2017), which makes it difficult for the algorithms to learn since the whole algorithm needs accurate and clear data (Domingos, 2017).

The way to assess what is a good design from what is not, as well as the definition of design principles is somewhat inconclusive and can be confusing even for design professionals. J. Zhang et al. studied ways to get the computer to evaluate logos, but for that, they had to define parameters and outline the challenges that the study could face. Even so, they admitted that they defined "each design principle in logos in a specific aspect, it is difficult to quantitatively measure such a design principle in terms of a human's judgment" (J. Zhang et al., 2017). They chose several types of black and white logos and evaluated them on four parameters: Aesthetics, Balance, Contrast, and Harmony. They used a machine-learning-based linear regression model to evaluate logos and then the results were compared to the evaluation made by people. The results of the regression model were identical to the evaluation of people, but even with good results, there are more parameters to take into account than just those that were evaluated (J. Zhang et al., 2017). Although other studies address the aesthetic classification of other forms of visual art, such as paintings (Sandoval et al., 2019) the truth is that these studies are useless when the subject moves from art to design. Studying aspects such as

memorability, sentiment, aesthetic (Cetinic et al., 2019) makes sense in art, but not in design as other aspects must be considered, since a design project always has a function:

> "Creativity in design has nothing to do with self-expression and an indulgent egocentrism. It requires, instead, an objective and flexible intelligence, an ability to analyze any problem from a multiplicity of viewpoints, so as to be able to understand the intentions of a client (the originator of the message), and the possible perceptions that a wide range of sectors of the public could have of a given message" (Frascara, 2004, p.11)

The classification of artifacts in both design and visual arts has been underestimated for several years, and the evolution of the study in artificial intelligence "perhaps served mainly to demonstrate just how high-level and complex is the cognitive ability of designers, and how much more research is needed to understand it" (Cross, 2006).

Instead of studying ways to evaluate design or art, another study tries to evaluate creativity in general. Raczinski and Everitt evaluate creativity on a subjective scale, using the most used words when referring to creativity: novelty, value, quality, purpose, spatial-temporal, ephemeral. All these factors must be evaluated in each of the "5P's" that are product, process, purpose, person, place. This method will allow quantitative values to be taken through subjective qualities, and to be more precise it must be carried out by more than one person to see if a project is creative. Raczinki and Everitt said that evaluating subjective qualities is subject to change depending on the personal opinion of who fills the scale as well as by social and cultural influences (Raczinski & Everitt, 2016).

Creativity has always been represented in films and described by artists as something inexplicable and that only happens when you least expect it, being a mystery. When we watch cartoons, we all know that when a light bulb appears over the character's head it is because he has just had a "bright idea". This idea of enlightenment associated with the moment when we have a great idea was popularized by Wallas who described

the creative method in four phases: preparation, incubation, illumination, and verification. Illumination would then be the stage in which creative solutions appeared, and that is why even today reaching a creative solution is like turning on the lamp and everything becomes clearer (Wallas, 1926). But Frascara says there is no mystery behind creativity, this is just a form of intelligence "creativity can be defined as the ability to conceive unexpected solutions to apparently unsolvable problems" (2004).

It seems then that creativity is not something that only some people can achieve, but something that we are all capable of because "it's grounded in everyday abilities such as conceptual thinking, perception, memory, and reflective self-criticism" (Boden, 2004, p. 1). Although we are all creative, some are more than others, but this can be associated with the process of reaching a creative solution. The act of observing, making connections between different information about the problem, analysis, and exploration, are all processes that lead to creativity (Frascara, 2004). Boden distinguishes between two levels of creativity: "'psychological' creativity and 'historical' creativity (P-creativity and H-creativity, for short)". P-creativity is the most common, and it is a surprising idea that a person had never thought about it, but that does not mean that others have not already had the same idea. While H-creativity is a new idea that no one had ever discovered or thought about. "New" can have three meanings: an unfamiliar idea; an idea that fits in with another that we had previously; an idea that we never imagined possible. Furthermore, Boden distinguishes between three types of creativity: combinational (connect data forming unfamiliar ideas); exploratory (notice new things in old places); transformational (change the rules to give rise to new ideas) (2004).

According to Oleinik creativity consists of: "metaphorical thinking; social interaction; and going beyond extrapolation in predictions". In all these three characteristics that define creativity, artificial neural networks are still not close to achieving any of those (2019).

In short, we would have to turn design into more quantitative methods and concretely define many of the design principles and concepts. The strengths of artificial neural networks are the ease in "discovering existing patterns in data and extrapolating

them" (Oleinik, 2019) and because of this, we would have to make the design more logical and not based on conceptual ideas. In the past, it has been tried that logo design becomes closer to a scientific and universal approach, but it ended up still not having much success. The designers who worked at Unimark tried to find ways to make the design an "assembly line", in which there were clear rules used by everyone. Geometric shapes, functional only, and always with the same type font. But even if it worked for a while, individualism in design always reappeared. It seems that more and more art and design come together, and some designers are hired only for their personal style. Also, Olt Aicher, who believed in the rationality of the design process, admitted that the idea never comes from reason. Even so, admitting that you can't make a logo based on reason may be a fallacy. Since if we want, for example, to make a logo for a cookie package, we can intensively research all the existing logos of cookie packages, organize the characteristics they have in common and produce a mixture of everything that we saw before. And we were going to have a result, but it probably wouldn't be a good one nor would it be different from the others. It was just another symbol, in the sea of symbols that we live in today.

The studies that tried to generate a logo through artificial neural networks seem to ignore everything that the logo represents. The logo is the face of a much larger identity behind it, not a simple symbol with beautiful colors and fonts. This symbol has the function of visually representing this identity which we will later call a brand.

The problem is that making the design more concrete makes it more susceptible to be applied in AI, but it takes away its essence. Cross attributes several adjectives to design such as: rhetorical; persuasive; exploratory; emergent; opportunistic; abductive; reflective; ambiguous; risky. If we remove the word design and replace it with machine learning or artificial intelligence how many will make sense? How to apply these to AI is not exactly easy to achieve and therefore we shouldn't, as Cross, explains neural networks shouldn't "just emulate human abilities, some of our design machines should also do things that designers cannot do." Instead of trying to figure out whether the machine will

ever be as smart or as creative as the human, we should be exploring what it would be useful for AI to do to help the designer improve his activity.

Boden refers to a type of creativity that is one of the most used types in design: combinational. The designer often creates links between existing concepts to create new ones. In creating these connections, you need a high level of knowledge about the problem so as not to make connections that don't make sense. One of the things that neural networks can be useful is to help the designer make these connections, as they can generate millions of connections in a short time. Boden says there are some challenges to be faced before this can happen which are "database with a richness comparable to ours, and, second, methods of link-making" (2004, p.8). Even so, exploring the ability of neural networks to create connections can be one of the possibilities to improve the design process, effectively and quickly, combined with software improvement for the practical part of the process.

The improvement of the tools used by the designer seems to be the best answer to make this faster and more efficient. Adapting them to the phases of the design process that take more time, such as the formalization of the idea and concepts, it could then be a way to improve the design without putting "something" that replaces the designer completely, but that collaborates with him during the process. Most of the tools used by the designer are used in the practical part of the design (elaboration of the project) and for that reason they update frequently and sometimes this turns out to be the phase that takes the least time. The initial concept is always the most complicated part as it requires intense research on the area that we intend to work on and a connection of several ideas that can create something new.

A report made by Pfeiffer, in Europe, the United States, and Japan, proves that creative professionals are not concerned with losing their job to AI, as they do not consider this a possibility, but are ready to explore the new possibilities that AI can bring, also admitting that it can thus force creative professionals to become better (2018). Even in the studies about generating logos, the designer seems to always be the rule maker and the final judge. In one of the interviews, Pedro Magalhães, recalls that design is a

communication made by humans for humans and that is why there is an entire emotional component, taken from our experience that would hardly be understood by any machine. One of the reasons for this is also due to the problem of complexity since there is no large database that supports all the information necessary to represent all the ideas and concepts of a human mind (Domingos, 2017). So probably in the near future, we still have designers but with more powerful tools.

CHAPTER 5 – FUTURE WORK

Summary

This chapter identifies what are the conclusions of this research, presenting what were the contributions made, and if the objectives and research questions are answered. At the end of the chapter, there's also identified the limitations and some forms that this research can be used for future work.

5.1 CONCLUSIONS

This research aimed to contribute to the study of the generation of logos through artificial intelligence, analyzing if there's a need to apply AI to the design methods. Based on a qualitative analysis of the data collected, it can be concluded that this is a complex issue that needs more time and several different approaches to reach definitive answers. Despite this, it was made a conceptual model for the generation of logos through artificial intelligence using an approach not yet tested in other studies. In this there was a focus on finding a way for the characterization of logos, that wasn't based on shapes or colors in specific. Also, rather than trying to generate multiple types of logos without a structure, the conceptual model starts with the analysis of one briefing, so it is possible to concentrate on very specific characteristics and trying to avoid nonsensical results.

As there was a merge between two different areas, it was especially important that both had a literature review, that we could compare their common points and what they diverge to understand how we could connect them. It was thus clear that both areas are aimed at problem-solving, but with different strategies for common purposes.

As mentioned in the introduction to this work, design is a discipline with a weak theoretical basis, and only with the cooperation of designers and professionals linked to information technologies would an evolution in both areas be possible. This study tries to start the collaboration of these two disciplines even though due to the limitations that

were put in the way, it is not possible to show any definitive results. It thus presents some contributions to the beginning of the collaboration:

- A literature review of the two disciplines that try to explain concepts and present the similarities between them;
- An analysis of the studies done previously in the generation of logos through artificial intelligence, from the designers' perspective;
- A logo characterization model, with 235 logos all characterized so that from these it is possible to create labels to teach artificial neural networks what each logo represents as well as its elements and the industry or activity they represent;
- A conceptual proposal using the studies made previously but with a new approach.

Even with the presentation of a conceptual proposal for the generation of logos through artificial neural networks, many doubts are raised as to whether, even with these changes, the algorithm will be able to generate something of sufficient value to be used in a real context and how to find a way for this generator to be part of the design process. In the interviews and data taken from this study, it seems that all designers expect a change soon but are not afraid to be completely replaced, as they believe that AI cannot work without a designer behind it, and perhaps access to increasingly intelligent tools it will be an opportunity for designers to become better at their work.

This study contributes to a discussion that shows no signs of slowing down, but for now, no definitive answers are sought. It was not possible to test the model for the creation of logos presented here, and thus, it is not possible to answer whether this would be a successful model. Since its complexity has been recognized since the beginning of the work, and for this reason, we can say that the objectives were fulfilled because the hypotheses and ideas for answering the questions that this study intended to answer were

created. Thus, confirming that the designer's profession as we know it today will end, but it will start a new era for the designer. An era in which the designer increasingly becomes a jack of all trades (and master of none).

5.2 LIMITATIONS

The beginning of the study intended, that a practical part of the work was developed, having thought about several study options that were not made due to several constraints during its realization.

Due to the particularities of the year of development and delivery of this dissertation, some of the initial plans for presenting the results of a logo generator through artificial neural networks, that it would only be possible to deliver with the collaboration with IADE's degree in computer engineering, ended up being delayed and so this dissertation presents a conceptual model for generating logos through artificial intelligence.

The collection of data, through methods such as interviews, in which responses based on the professional experience of the person are intended, will be data that can be influenced by personal factors.

5.3 FUTURE WORK

As it was not concluded what was initially intended, many doors are open for further investigations. In addition to improving the logo generator through artificial neural networks (which will continue to be studied, taking as a starting point this study, by other researchers at IADE), for future research, the following topics are suggested:

- Test in a professional environment, whether a logo generator working together with the designer can bring some of the benefits that the studies argue exist in this partnership.

- Compare the logos generated by "artificial intelligence" and relate them to others made by designers. Both must have the same briefing for the realization of the project, to later evaluate the approaches of each solution. This will be relevant to understand more concretely if artificial neural networks can somehow approximate to the work done by a designer, also discussing the implications of this. Bearing in mind that in other studies such as that by, Sage et al., the results obtained even without having the best resolution reminded us of existing logos and if the "artificial intelligence" for now only manages to recreate what already exists, we should also evaluate better if this can end the differentiation between brands.

- If we want the logo design, and in general the design, to be improved by the new technologies and not ruined by them, it is necessary to consolidate on a theoretical basis of design. Understand the complexities of both areas, as well as working together with designers and information technology professionals.

- Studying ways of instead of artificial intelligence overseeing the practical part of the logo creation process, try to apply them to the concept definition part. Betting on the strengths of artificial neural networks (such as discovering existing patterns and extrapolating them) and try to apply them in the design process so that it helps in the part that takes the longest (first stages of the process), as well as helping the designer to become more efficient in his work and also increasing the reliability of a project. Some ways

that can be studied for this to happen are: Exploring ways to make connections between ideas through general concepts; Ways to make the search more effective, for example, through a quick search on the double meanings that a symbol can have in different cultures and contexts.

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Source: Duarte, A. (2020). *Logo Generation Throught Artificial Intelligence* [Master's thesis]. IADE– Faculdade de Design Tecnologia e Comunicação da Universidade Europeia

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Figure 20- Logo Design Process by Zhang et al.

Source: Zhang, K., Bo, Y., & Yang, Y. (2017b). *Towards a Design Generation Methodology*. 14–16.

Figure 21- Figures 194 and 196 of the thesis of Fernando Oliveira

Source: Oliveira, F. (2015). *Diagramas & Marcas: Contributos sobre a utilização de diagramas na conceção e análise do discurso visual das marcas* [Doctoral dissertation]. Faculdade de Arquitetura.

Table 1- Design Methods

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Table 2- Adapted version of the scheme of Norvig and Russell (2010)

Source: Norvig, P., & Russell, S. (2010). *Artificial Intelligence: A Modern Approach* (3º). Prentice Hall.

ANNEXES

ANNEX I – INTERVIEWS (PORTUGUESE)

Entrevista Fernando Mendes

1-Qual o seu método para a criação de identidades visuais?

Gosto de começar por definir um caminho, uma abordagem ao contexto em que a marca opera. Depois, a minha abordagem inicial passa sempre por tentar resolver a partir de tipografia apenas, quando o consigo, desenvolvo a proposta a partir daí. Quando não resulta ou não é suficiente para expressar eficazmente a marca, passo a outras possibilidades. A tipografia tem sempre um peso enorme nas soluções gráficas a que chego.

2-O fator "tempo" é muitas vezes relacionado com método de criação de logótipos sendo descrito como longo/demorado. Por sua vez vivemos numa sociedade em que o fator velocidade ganha cada vez mais importância. Como acha que o método de criação terá de se adaptar a esta sociedade?

O processo de identificação visual de uma marca pode ser desenvolvido de forma mais rápida ou mais lenta. Nuns casos, o processo avança muito rapidamente, em dias ou semanas. Noutros casos, as limitações ou problemas encontrados atrasam mais o processo. De qualquer forma, há que distinguir o trabalho profissional e especialista de um designer gráfico das soluções quase ready made que se podem encontrar online com grande facilidade. Dar corpo visual a uma nova marca, distinta e original, requer também uma solução distinta e original. A tecnologia permite-nos acelerar muitos dos passos que anteriormente nos tomavam tempos indefinidos. De forma mais radical, é sobretudo a possibilidade de errar mais e corrigir rapidamente que permite este acelerar do processo criativo. No entanto, esta aceleração, por si só, não é sinónimo de maior qualidade nas soluções gráficas desenvolvidas.

3-Continuando nesta temática do tempo, qual a fase que considera mais demorada no seu processo de concepção de Identidades Visuais?

A imersão inicial no contexto da marca, sobretudo que é um contexto que não me é familiar. Essa capacidade imersiva dos designers é exatamente o que mais os distingue de outros profissionais e que, antecipo, os tornará elementos chave em quase todo o tipo de organizações.

4-Como acha que o computador, e por sua vez a internet, veio influenciar a forma como os designers trabalham hoje?

A Internet e os avanços tecnológicos vieram sobretudo democratizar o acesso às ferramentas usadas pelos designers. De certa forma, todos têm hoje acesso a essas ferramentas e, até certa medida, conseguem fazer uma parte do trabalho do designer. No entanto, na maioria das vezes, falta a este tipo de abordagem a metodologia, o conhecimento específico, a cultura e a visão holística de um designer profissional (seja ou não formado academicamente).

5-Acha que existe sempre uma parte pessoal (a marca do designer) nos projetos de identidade visual?

Historicamente, o Design distingue-se da Arte exatamente porque o objeto de trabalho do designer é-lhe sempre exterior, no sentido em que o fruto do seu pensamento está ao serviço do outro. O artista, mais centrado em si mesmo, é livre de desenvolver uma visão do mundo sem os constrangimentos comerciais, institucionais ou de produção a que o designer tem de observar. Dito isto, as fronteiras entre os dois campos são cada vez mais ténues, permitindo zonas híbridas de atuação.

6-Acha possível que o designer seja substituído pela máquina (Inteligência Artificial) em algumas fazes de criação?

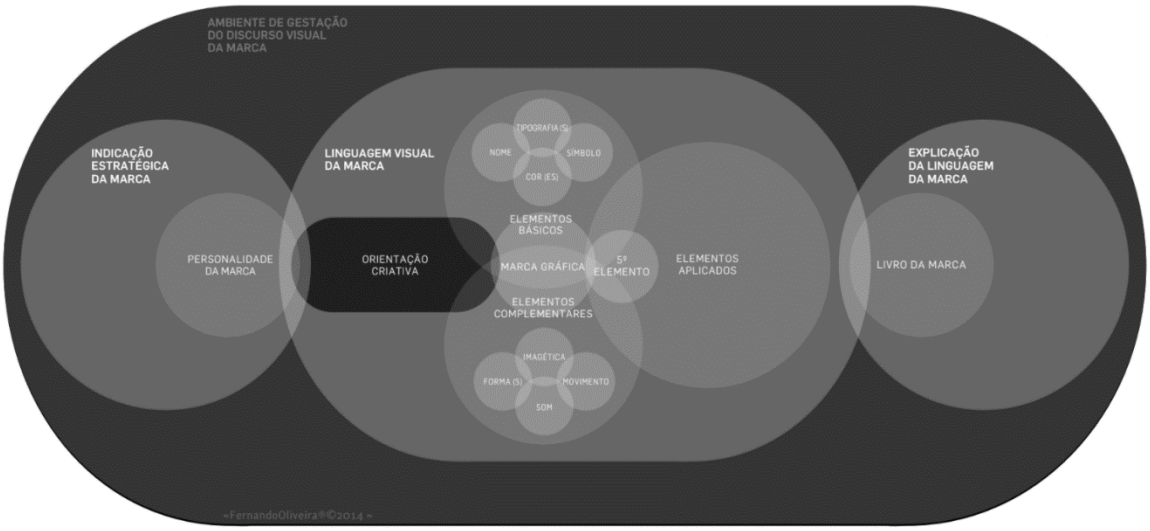
Não faço ideia e não me preocupa particularmente. Penso que o lugar dos designers vai gradualmente (ou muito rapidamente) migrar para os níveis mais altos de decisão dentro do que forem, num futuro próximo, as organizações profissionais.

7-O desenho continua a ser uma das grandes competências do designer? (se acha que o desenho não é uma das grandes competências do designer poderia dizer quais para si são as grandes competências do designer?) Porquê?

Claro que sim. O que nos distingue é esta capacidade de investigar pelo desenho, pela representação visual de informação, tornando-a mais simples e fácil de ser compreendida, por todos e a todos os níveis. Mesmo nas novas áreas do Design, como os serviços ou o produto digital, essa capacidade de tornar simples pela via gráfica continua a ser um requisito essencial de um designer. De outra forma, mais valeria chamar-nos outra coisa que não designer.

Entrevista Fernando Oliveira

Esta entrevista teve como base os modelos lineares finais desenvolvidos em Diagramas&Marcas - Contributos sobre a utilização dos Diagramas na Construção e Análise do Discurso Visual das Marcas, Fernando Oliveira, 2013. Estes são:



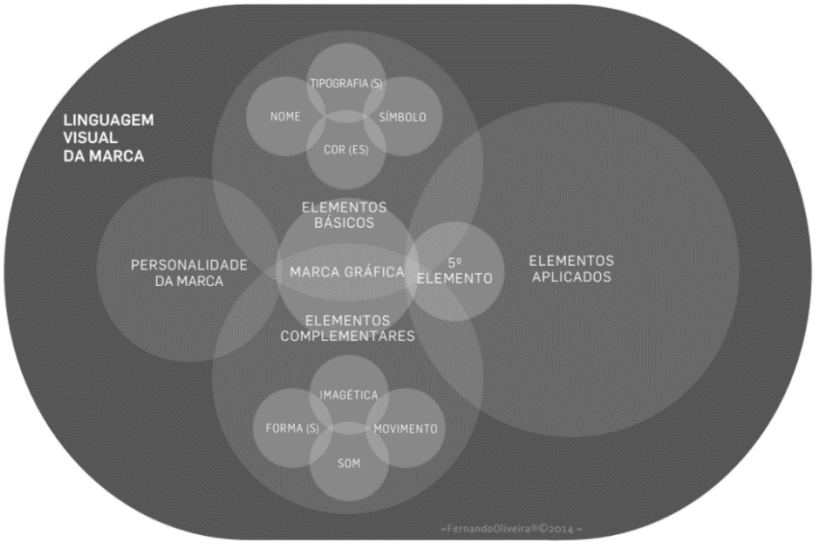


Fig. 21 (Figura 194 e 196 da tese de doutoramento de Fernando Oliveira) –" Modelo Linear final para a representação, genérica, do processo de Construção/Conceção de um Sistema de Identidade Visual – Versão explicativa"; "Modelo Linear final para a representação de um Sistema de Identidade Visual (utilizado para a Análise/Diagnóstico) – Versão explicativa."

1-Porque é que acha que este é o melhor modelo?

Não acho que seja o melhor modelo. É um modelo, não é o melhor. Ele é mais um. Tu tens muitos processos, vários autores que falam de várias coisas e vários processos.

2- Mas produz bons resultados/bem-sucedidos?

Produz resultados bem-sucedidos e rápidos. E consegue misturar o processo de decisão com o creative thinking. Normalmente, isso passa pelo diretor criativo de um determinado sítio que dá a ideia de esse input final e com isto como é esquemático tu consegues ser tu a chegar a uma linguagem. Por eliminação ou seleção de elementos.

3- O fator "tempo" é muitas vezes relacionado com método de criação de logotipos sendo descrito como longo/demorado. Por sua vez vivemos numa sociedade em que o

fator velocidade ganha cada vez mais importância. Acha que este método se adapta a esta sociedade?

Tens projetos e projetos. Projetos que não. Está aqui uma quantidade de alinhas que são importantes, mas eu agora só quero isto, eu ai entro com uma solução de fast design. Não meto o modelo a trabalhar, meto logo com informação que tenho da experiência a trabalhar e começo a fazer alguma coisa para não ter de estar a gastar muito tempo e cobrar não sei quanto. Em projetos que tu precisas mesmo de saber os teus concorrentes e criar uma coisa diferenciada dá excelentes resultados.

4- Continuando nesta temática do tempo, qual a fase que considera mais demorada no processo de conceção de Identidades Visuais?

É a fase de discussão da definição do DNA, personalidade que as vezes não esta bem definida. E depois a junção. A primeira junção do material todo. A partir do momento que tu juntas tudo o que faz parte daquele universo e esquematizas depois a partir dali é sintetizar. Mesmo que haja linguagens, uma síntese que vai para ali e outra que vai para outro lado tu já tens isso e dai é só tirar. E depois implementares. Porque a partir do momento que tens as orientações criativas tens que começar a concretizar o conceito do design. E isso já tem haver com o tempo do trabalho.

5- Então a primeira fase e as últimas fases são aquelas que demoram mais tempo e que não retiraria de todo o processo?

Eu não faço a última fase as vezes passo a outras pessoas. E não retiraria porque ela é o elemento de ligação da marca ao mercado. Agora, por mais tempo que estejas a perder aqui esta fase dos elementos é a mais importante. Porque é os elementos que te dão conhecimento um a um daqueles códigos todos dentro do sistema e ao mesmo tempo atribui valor a cada um dos elementos. Tu vais passar a dar uma importância diferente a ligação do nome com a estratégia, a importância da tipografia aos símbolos e em relação

ao que é que tem com a história com o tempo. Esse valor começa a ser clarificares aos teus clientes e até se for um trabalho de direção criativa e designer juntos a mesma coisa.

6- Na conclusão desse trabalho diz que: "o processo não segue, necessariamente, as lógicas da racionalidade" mesmo isto sendo um facto não acha que, atualmente, o método de trabalho de um designer tende a ficar cada vez mais racional?

Não. Mas cada pessoa tem os seus processos e as coisas não são lineares. Nunca. Agora isso é diferente de tu seres racional na tua capacidade de decisão analítica na tua capacidade de decisão através de materiais qualitativos. Tens de saber decidir e o esquema ajuda-te a decidir. Tens de ser racional porque a decisão aumenta a tua evolução exponencial, se tu não decides não evoluis, mas ao mesmo tempo é a parte emocional que traz o picante e as especiarias aos teus clientes. As tuas experiências, etc. Até porque ela condiciona a recolha de informação quando tu procuras por um determinado DNA. A experiência traz coisas.

7- Acha que existe sempre uma parte pessoal (a marca do designer) nos projetos de identidade visual?

Em tudo. Porque é o teu tempo de trabalho, aquilo que tu foste aprendendo. O Picasso tem uma história sobre isso. Alguém pediu lhe para fazer um desenho no aeroporto. Ele agarrou num papel e em 30s fez a cara da senhora e entregou lhe. A senhora disse obrigado e ele disse obrigado, não são 20 mil euros. E a senhora disse então, mas fez isto em 30s e ele responde não isto demorou 40 anos. Estás a dar ali um input muito pessoal, mas baseias te na tua experiência, racionalmente focado em nós.

8- Como acha que o computador, e por sua vez a internet, veio influenciar a forma como os designers trabalham hoje?

A máquina e as tecnologias não há forma de tu dares volta a isso. Elas até te ajudam a montar ideias desde que tu controles a tua plasticidade, se tu ficas agarrada a linguagem daquilo depois toda a gente pode fazer igual. Portanto a originalidade é igualmente lógica. A questão do digital o computador até te ajuda a controlar o pormenor e o detalhe, tu desenhas e torna-se fácil de reproduzir. Depois há esta coisa das tecnologias também puderem interferir na componente emocional e visual e o lado perverso das marcas é de controlarem a vida das pessoas. Tu consegues medir mais ou menos em que situações é que as pessoas precisam de coisas.

9- Não acha que a internet pode ajudar a que os projetos comecem a ficar todos muito parecidos uns aos outros?

Há uma coisa que eu ainda não percebi, no mundo as pessoas têm muito esta ideia de diversidade e serem quase tribos únicas, mas ao mesmo tempo o mundo tende para ter menos coisas. Menos empregos menos empresas a mandar em tudo, menos pessoas a trabalhar e aí a tendência disso é que as marcas ficam como a coca cola, ou seja, mais global. Que perca os seus elementos locais e agarra as coisas por custos e a Starbucks é outra.

10- Acha possível que o designer seja substituído pela máquina (int. Artificial) em algumas fases de criação?

Não sei. Há situações por exemplo nos logos, e na leitura dos mercados conforme tu criares o algoritmo ele vai fazer a leitura de todos os padrões que consegue. Eu já consegui isso através de um programa que leu o Instagram e que através de hashtags ele faz te mosaicos de coisas publicadas sobre aquele tema. Então introduzimos as palavras chave de lisboa e conseguimos perceber o que em termos de turismo as pessoas consomem mais.

Então talvez nesta parte inicial ajude….

O diagnostico ajuda-te a conhecer cada vez mais a persona e os mercados. Então neste processo de análise ajuda muito. O processo de análise nasceu para tu olhares por comparação. Este processo depois tem a ver com uma coisa simples que é na maior parte dos cursos complexos, medicina, advocacia, direito, marketing, economia, finanças, toda a gente trabalha com esquemas, por causa do pensamento abstrato vocês (estudantes de design) não. As cadeiras que têm design de informação são para resolver problemas de infografia e este processo o que faz é transportar a realidade do esquema para o processo da marca e quando tu fazes isso tens uma coisa muito importante que é a comparação estabeleces o paralelismo e coisas similares para puderes ler o mercado. As tecnologias ajudam muito nessa fase, quando é a fase de concessão e tudo isso já esta basicamente formatado ou deve estar.

11- Então acha que a tecnologia pode ajudar nas duas etapas ou apenas mais numa delas?

Mais na primeira, a da análise. Mas de qualquer das maneiras tu tens de educar, quando chegares a esse ponto tu tens de educar a marca sobre o universo da orientação criativa. Esta (fase de síntese e criação do grafismo) pode ter menos tecnologia, mas podes fabricar a marca toda a partir do algoritmo, a marca da oi, da mit, são todas a partir do algoritmo.

12- Então acha que o desenho continua a ser a grande competência do designer?

Não. Nunca achei isso. A melhor competência é a cabeça. O design define a sociedade. A arte anda a frente. Tu trabalhas para aquela sociedade. O produto que tu fazes é reflexo da história é uma peça de antropologia. Se tu fores falar em design de produto, o Space Shuttle é feito por um designer de produto, os carros onde tu andas, as cadeiras onde tu te sentas. Se fores falar em arquitetura de interiores são eles que fabricam experiências

que é muito importante na vivencia das pessoas, experiências de casas, de café, de restaurantes.

13- Então acha que o design agora é mais experiências e não tanto a parte pratica, mais a mente?

Sempre foi a mente, depois tu produzes é pela prática do desenho. O desenho tem uma importância enorme no sonho, concretiza o sonho e o desenho é ótimo. Porque o concretiza o sonho, materializa o sonho. Mas é a cabeça, a tua leitura da sociedade, a tua cultura, e o teu contributo que podes dar e isso vem tudo da cabeça. Claro que as metodologias são importantes, mas não é o desenho só, é um todo. Tu podes nem saber desenhar muito bem e seres bom designer. Se tu tiveres a componente de desenho a facilidade em materializar coisas que depois ficam com o registo que depois podes utilizar. O desenho é uma mais valia se tu só souberes esquematizar é uma mais valia também porque ele materializa o sonho é a primeira coisa, mas no design é a questão da cabeça e da forma como vês o mundo. É isso que te faz crescer de alguma maneira influenciar as pessoas e inspirar as pessoas. O design tem de estar aí.

Entrevista Pedro Magalhães

1-Qual o seu método para a criação de identidades visuais?

Eu não sou designer, sou diretor de arte alias hoje em dia já nem faço direção de arte sou diretor criativo, sou diretor executivo o que é ainda mais um bocadinho acima do diretor criativo portanto estou cada vez mais afastado da criatividade pura, o que na verdade é o mais interessante e o que mais me continua a afastar tenho imensa pena mas vais avançando na carreira e vais te afastando desse processo desses métodos. Eu na verdade, não tenho nenhum método. E acho que a criatividade não em design, mas em

publicidade as coisas são tão rápidas e são feitas em tão pouco tempo que não há uma metodologia fixa tradicional, não há uma regra. Eu acho que é conforme o tempo que tu tens, conforme a equipa que tens. Não te consigo dizer "ah é o design thinking é o etc." Não tenho um método e tenho feito uma carreira boa, portanto, o facto de não ter método não me prejudicou coisa nenhuma acho eu.

2- Nem no início da sua carreira não chegou a um ponto que sentiu que devia arranjar um método projetual?

Não olha eu dou aulas, dou aulas no iade e dou aulas na world academy, dei aulas na restart, sempre de criatividade e design, desenhar e direção de arte. Quando chegávamos a parte de explicar o que fazíamos, são aulas dadas muito mais pela experiência, pelo conhecimento teórico. Eu chegava a parte em que explicava o meu processo criativo ou a geração de ideias, a criação de ideias e dizia que não sei. Não vos sei explicar como é que isso se faz. Claro que tu tens alguns passos para criar uma marca, mas eu não te consigo dizer uma receita. Eu não tenho uma receita.

3- Já lhe sai por instinto?

Há coisas, sei lá… Por exemplo, talvez o trabalho mais enriquecedor que eu fiz nesse campo foi há uns anos, há uns 10 anos atrás, a criação de uma marca da Optimus. Para entrar no mercado com a Yorn. A Vodafone tinha a Yorn, portanto a marca mais nova que ia buscar clientes mais jovens e assim fazê-los clientes da Vodafone para o resto da vida e, portanto, era essa a grande intenção da Yorn. Uma linguagem completamente diferente, completamente disruptiva, inovadora naquela altura. Eles estavam a falar realmente só com aquela faixa etária, os pais deles não percebiam nada. E depois a Optimus acordou uns anos depois e decidiu fazer uma marca para entrar no mesmo mercado e para fazer a mesma coisa, para ir buscar clientes mais novos. E a agencia onde eu estava que era a Euro RSCG que agora se chama HAVAS que tinha acabado de

ganhar a Optimus que depois vem dar a nós, passou-nos um briefing de criação de marca, naming, design, identidade gráfica toda, as embalagens, a comunicação, tudo… e foi muito engraçado, muito interessante e foi o que fizemos. E mais uma vez lá esta estou-te a contar a minha experiência. Ninguém escreveu um método num quadro vamos fazer assim, assim e assim. O que nos fizemos foi reunimos, todos os profissionais que iriam estar envolvidos, ou seja, desde os digitais, designers, estrategas até aos críticos publicitários, e estávamos todos numa sala. Ou seja, a parte estratégica, os de planeamento estratégico fizeram o plano, ou seja, começaram a pensar mesmo antes de nós começarmos a pensar, assimilaram a informação toda que tinham afunilaram e disseram que o caminho é por aqui, é por aqui que vocês tem de ir. E a partir dai nos pensamos não todos ao mesmo tempo, se não era caótico. Estávamos todos na mesma sala a pensar, mas o nosso ponto de partida foi o mesmo saímos todos daquela sala cada um para o seu espaço, combinamos encontrarmo-nos dai a uma semana para vermos ideias. Todos contribuíram para a mesma coisa não houve uma divisão, por exemplo, publicidade tem de fazer publicidade. Todos pensaram no mesmo, começaram pelo nome, o porque desse nome. O nome depois dava logo coisas, logo soluções gráficas. Porque a nossa cabeça funciona assim, vai se desdobrando e vai caminhando, é meio caótico, mas vai andando por aí fora. E assim o processo foi se fazendo... Foi dos processos mais divertidos, mais incríveis e estou sempre a lembrar-me desse processo. Foi "bora lá pessoal, bora todos" e fizemos o optimus tag a marca na altura foi o tag que depois deu passado uns anos deu origem a WTF. WTF é a filha do TAG.

4- Nestes projetos que faz acha que existe sempre uma parte sua? Mesmo que não seja sua, quando trabalha com outros designers sente que cada um deles deixa uma parte pessoal nos projetos?

Sempre. Eu acho que quando tu és criativo, dás sempre alguma coisa de ti. É inevitável.

5- Mesmo com o cliente a fazer pressão acha que mesmo assim…?

Sim.. sim… No fim do projeto, tu podes dizer que isto já não tem nada a ver com aquilo que eu fiz e não tem nada a ver comigo, acontece-me também várias vezes, mas também acontece muitas vezes tem a ver comigo e fui eu que fiz isto. Eu costumo dizer nas aulas, e digo aqui também aos criativos, eu acho que quem cria com verdade e intensidade, (mas claro há pessoas como há em todas as profissões que não se entregam e que não sentem isto da mesma forma e da mesma maneira) quem sente, e acho que a maioria sente, claro que cria com o cérebro, é o cérebro a nossa principal ferramenta. Mas eu acho que para além do cérebro, tens de criar com o coração. Eu acho que as ideias não saem do cérebro, mas sim do coração. Crias com as tripas, porque se não criares com as tripas o que é que interessa. É uma frase meio bruta, mas eu digo isto de propósito, para ser bruto. Tem sempre de te vir de dentro. No entanto tens de te afastar emocionalmente das ideias elas depois são mexidas e são chumbadas e são alteradas. E tens de ter esse distanciamento, não podes ficar ofendido porque te alteram uma ideia, não podes ficar ofendido porque não estão a dizer mal de ti estão a falar daquela ideia. A ideia é que esta errada não és tu que estas errado. E ainda temos outra coisa que temos de fazer falando de afastamento que é, eu não posso fazer uma coisa para mim. Não estou a criar para mim estou a criar para aquele diretor de comunicação, para aquela marca, estou a criar para uma identidade muito maior que é uma marca. Tenho de criar para a superbock, para a glovo, ou para a volkwagen, estou a criar para o doutor não sei quantos. E muitas vezes também é o cliente que tem muita dificuldade em perceber isso. Eu digo-lhes muitas vezes pensem que isto não é para ti, mas é humano é normal que tu deixes levar pelo teu gosto, é normal.

6- Tendo uma carreira de quase 30 anos, acompanhou a viragem do século, todas as novas tecnologias em que tudo ficou mais rápido e muda constantemente, como é que essa mudança afetou o seu trabalho?

É incrível. Mas olha que não foi na viragem do século que a coisa virou. Acho que nos últimos anos, claro que as coisas evoluem sempre, claro que a velocidade das coisas aumentou. Quando eu saí do IADE e comecei a trabalhar, estávamos a começar a utilizar os computadores, o Macintosh a entrar em força no mercado. E eu, talvez, fui a última geração que ainda fazia muitas coisas a mão, mas que depois começou a utilizar o computador. Ainda apanhei o final do fazer coisas a mão, mas depois entrou o computador e havia os diretores de arte mais velhos do que eu. Eu tinha 23, 24 ou 25, mas imagina os que tinham 28 ou 30 anos não queriam computadores. Rejeitavam os computadores. E isso foi uma das mudanças que demorou alguns anos e foi andado andando e andando… e eu acho que no final do século XX, ou seja 1999 ou 2000 nós começamos a fazer uma coisa que era o digital. Os clientes começaram a pedir para fazer sites, pediam coisas que só aconteciam na internet. E mesmo na nossa vida, por exemplo, eu lembro-me de ir ver os anúncios que se faziam no brasil, eu trabalhava com um brasileiro e ele estava sempre a pesquisar os anúncios que se faziam no brasil, e eu comecei a ver e a utilizar a internet quase como se fosse uma ferramenta, para nós trabalharmos e para vermos o que os outros estavam a fazer. Ouvíamos falar de uma campanha e não estávamos a espera que ela chegasse íamos logo ver. E as coisas foram acelerando e acelerando a uma velocidade muito mais cadenciada, mas nos últimos 10 ou 5 anos a diferença é abismal. É incrível. Eu saí a fazer uma mudança na minha carreira que é difícil e continua a ser difícil que foi cresci, tive anos a trabalhar em agências de publicidade e uma grande campanha era: televisão, impressa, outdoors e rádio. E era isto sempre. E aquilo já me saia naturalmente. Quando o digital começou a entrar a televisão perdeu muita importância, a impressa desapareceu os outdoors continuam, mas a rádio não se ouve falar, não há rádio. A rádio é um meio giríssimo e acho que os clientes se esqueceram de fazer rádio. Mas agora acabamos por fazer montes de coisas, que as vezes nem saem. E isso fez com que eu saísse das agências tradicionais e fui para agências digitais. Fiz duas vezes essa mudança. Primeiro fui para a ExcentricGrey, e depois para a Fullsix que é uma empresa completamente digital, para me obrigar também a entrar nesses meios. Por exemplo na Fullsix, não percebia nada

daquilo que eles diziam, falam montes de metodologias e palavras que eu não sabia. E tinham de me explicar depois. Mas havia uma coisa que é mais importante seja em digital ou nos meios tradicionais, a ideia. Como é que a ideia se expressa.

7- Mas acha que esta evolução e o facto de estarmos todos em contacto e a ver constantemente o trabalho uns dos outros que se perde um pouco de criatividade, e os trabalhos começam a ficar muito semelhantes uns aos outros?

Talvez. É engraçado isso. Porque eu não tinha pensado nisso, mas é verdade. Porque as tantas tu privilegias o meio, a forma e não o que esta por de trás que é a ideia. Muitas vezes, e sem querer criticar, eu não quero criticar, mas eu também cometo erros e o pessoal mais velhos também. Mas uma coisa que eu reparei, que em algumas agências acontece, é que os diretores criativos metem muito a frente a media, a forma, a tecnologia e não a ideia. Várias vezes eu chegava com ideias, campanhas e propostas, mostrava e eles diziam que isso era uma campanha que podia ser feita por outra agência qualquer, não vejo ai tecnologia que é o que nos faz diferente. Mas eu dizia que antes da tecnologia tem de vir uma ideia, é isso que faz a diferença. São as boas ideias e não a tecnologia. Qualquer pessoa pode utilizar a mesma tecnologia.

8- Acha que o desenho continua a ser a grande competência dos designers?

Eu acho que ajuda imenso. Eu acho que sim. Porque significa uma coisa, quando tu desenhas bem ou tens de ter um jeito, isto não é muito fácil eu já falei várias vezes com alunos e tudo já falei várias vezes nisto. Eu desenho bem, mesmo desde pequenino e por isso é que eu vim para aqui direto, não tive nada aquela angústia dos adolescentes de "não sei aquilo que faça..." Eu queria ser arquiteto, mas depois percebi que não era arquiteto era designer, depois percebi que não era bem designer era diretor de arte. Ajuda imenso porque é muito mais fácil, as ordens que o teu cérebro manda para a mão ou papel é muito rápido, microssegundos, e preciso de desenhar uma ideia se não

desenhar uma ideia ela fica aqui na minha cabeça. E depois quando eu a projetar, quando eu a desenhar no computador talvez já não vai ser exatamente a mesma coisa, vai faltar alguma espontaneidade, alguma alma que o braço humano tem. E por aí acho que é muito importante desenhar, já vi designers a fazer grandes trabalhos que não sabiam desenhar, mas acho que ajuda.

9- Acha que existe alguma competência maior que o desenho?

A criatividade. A tua imaginação, a tua capacidade de projetar uma solução. Acho que tanto em publicidade como em design é muito mais importante, mas se tiveres as duas coisas fantástico.

10- Acha possível a máquina substituir o designer completamente ou apenas em algumas fases do processo de design?

Que substitua algumas partes sim, que substitua o designer espero que não. Espero que não, porque lá esta falta-lhe essa parte espontânea, humana que a máquina não tem. É engraçado porque estamos a falar muito e nos últimos dias eu falei de inteligência artificial aqui na agência, e nós estamos à procura de uma ideia que utilize inteligência artificial mas que na verdade no fim nós vamos ganhar a inteligência artificial, vamos explicar que talvez mesmo que possa ser fantástico há sempre problemas, como o valor humano, uma interpretação que só pode ser humana, uma solução que só nós podemos dar e a máquina não faz. No entanto ela vai resolver coisas como nós não resolveríamos, vai trabalhar com data, vai pegar nos dados todos e vai fazer uma solução perfeita, e rapidamente. Que nós não faríamos.

11- Acha possível integrar a máquina agora no seu contexto de trabalho, para gerar ideias?

Talvez ia-me ajudar imenso. Eu acho que na prática não vai existir tão cedo. Mas se um dia existir talvez vai me ajudar imenso. Por exemplo, nós fizemos um filme, que adoramos imenso, que foi a história de natal da Vodafone e não sei se uma máquina conseguia fazer aquilo. A emoção, fazer chorar, zanga, irmãos, família. Eu não sei se a máquina conseguiria construir aquela solução. Porque não é assim tão simples. Nós não fizemos essa lista, nós tínhamos um tema, e trabalhamos em cima do tema. O tema era zanga e teima. O facto de as pessoas estarem todas juntas e gostarem umas das outras tem de ser sempre mais importante que zangas esse era o ponto de partida. Mas o filme não nasce instantaneamente porque eu cheguei a este raciocínio. E eu acho que a máquina também não chegaria aquela solução. Eu acho uma coisa que é muito importante para o teu trabalho, comunicação e estou a falar de design sendo comunicação, logo design é uma conversa entre seres humanos. Ou seja, marcas que são identidades não humanas são trabalhadas, feitas e fabricadas por seres humanos. Gerida por seres humanos e é uma conversa entre seres humanos. Portanto tem de ser alguma coisa que nós compreendamos, que nós percebemos, que nós nos revemos, que nos conseguimos emocionar ou divertir, ou entreter. E uma máquina nunca terá esse lado, por mais eficaz que seja, e por mais amplitude que tenha de soluções que tenha eu acho que faltará sempre a parte humana. Agora talvez venha tentar resolver imensa coisa. É assustadora a inteligência artificial. É um misto de fascínio. Eu acho que desde que nós nos consigamos dobrar e sermos responsáveis com as máquinas eu acho que as coisas vão sempre trabalhar para nos ajudar, para nos aproximar, para resolver a nossa vida e torná-la mais simples. Nós havemos de ter sempre importância nesse processo se não qualquer dia não fazemos nada e as máquinas faziam tudo. Estávamos só em casa a engordar.

Eu penso e não sei se concorda comigo que talvez as máquinas possam gerar caminhos…

Sim, gerar caminhos. Mas olha voltando aos métodos, há coisas que são trabalhadas convosco o departamento criativo e o departamento de estratégia que podem ajudar a marca. Tens qual é a tensão da marca, a tensão que ela cria, tens vários pontos que podem ajudar a fazer um caminho até chegar a great idea. Até chegar a ideia da marca. Qual é que é o propósito da marca, o que é que ela quer dizer, que mensagem é que ela quer dizer.

12- É essa fase que é mais demorada até chegar a great idea?

Sim, mas eu acho que é muito estratégia, pode ser feita com os criativos. Depois de chegar até mim a great idea, a mensagem, o propósito da marca, parte para pensar em como transmitir essa mensagem aos consumidores. E aí o método é caótico. Senta-te a pensar e concentra-te. Eu trabalhei com vários criativos que diziam que a aquela coisa, a aquela maneira que é assim e assim, mas eu pensava, mas aquela maneira já esta feita. Vamos pensar numa nova. Porque assim estou a repetir coisas estou a repetir formulas. É muito angustiante o trabalho criativo. Mas é muito… Quando tu chegas a ideia é incrível. É uma sensação física. Quando os alunos me perguntam como é que se cria uma ideia. Normalmente digo que apenas surge como uma explosão, mas não sei explicar como.

Entrevista Rita Murias

1-Qual o seu método projetual?

Até há uns anos a forma de receber um descritivo para um projecto (briefing) era através de uma reunião presencial, onde era transmitida a informação e conteúdos para o trabalho a desenvolver. Ainda acontece nalguns casos mas são cada vez menos. A forma mais comum, atualmente, é receber o brifieng/descritivo e objetivos por email. A partir

daqui desenvolvo sempre, numa primeira fase, uma pesquisa e é, talvez, a parte que demora mais tempo. Segunda parte mais lenta será a escolha da tipografia, seja que tipo de trabalho for. Depois segue-se o desenvolvimento de uma serie de maquetes/estudos para a proposta, dependendo do tipo de trabalho, normalmente envio mais do que uma versão. Fico a aguardar o feedback do cliente, que será presencial ou não, faço as alterações e envio ficheiros até à fase da arte final. Este processo varia se são capas de livro, paginações ou logotipos. Um caso interessante foi quando tive de desenvolver um projeto editorial, onde fui eu a elaborar os conteúdos. Fui escrevendo os textos à medida que ia desenvolvendo o layout, alterando o design à medida que aplicava novos conteúdos (e vice-versa) e isto foi muito interessante por verificar que o processo organizado que sempre tive, foi alterado quando os conteúdos não dependiam de terceiros.

2- O fator "tempo" é muitas vezes relacionado com o método projetual sendo descrito como longo/demorado. Por sua vez vivemos numa sociedade em que o fator velocidade ganha cada vez mais importância. Como acha que o método projetual terá de se adaptar a esta sociedade?

A comunicação online veio acelerar qualquer processo de trabalho. Mesmo que o método projetual tende a ser lento. No entanto, depende do cliente e da forma como o cliente nos considera fundamentais neste trabalho. Ou seja, se formos mais um designer numa lista de muitos, em que facilmente somos substituídos, o tempo de demora do processo conceptual antes de apresentar uma proposta, nem sempre é valorizado. E só conta a rapidez em muitos casos. Se clientes sabem que sou rápida a trabalhar, às vezes esse é o primeiro critério. Quando somos especialmente convidados para determinado trabalho, a questão do tempo e de haver um processo ou método projectual, já passa a ser valorizado e é quando um trabalho corre melhor.

3-Continuando nesta temática do tempo, qual a fase que considera mais demorada do seu método projetual?

É a parte da pesquisa onde procuro encontrar ferramentas de trabalho para desenvolver o meu design: projetos semelhantes ao pretendido, fonte de inspiração, investigação sobre o tema a desenvolver, autor, materiais, técnicas de impressão acabamentos, etc. Depois passa a fase do desenvolvimento do layout e escolha da tipografia, capa, etc.

4- Como acha que o computador, e por sua vez a internet, veio influenciar a forma como os designers trabalham hoje?

O processo de trabalho antes do computador era naturalmente mais lento. Não tínhamos acesso a ferramentas que existem na internet, teríamos de ir a bibliotecas ou pedir explicações a ateliers ou técnicos especializados, ou enviar para outros profissionais para finalizarem determinados trabalhos, especialmente com imagens. Há atualmente uma grande superficialidade e pouca investigação a fundo. O computador ajuda e facilita muito. No entanto, vendo por alguns estudantes, nem sempre vão investigar a origem das coisas ficam muitas vezes pela Wikipédia, Pinterest, etc. Há muita informação adquirida pela internet que pode ajudar muito os designers nos seus processos de trabalho. Para os que vão mais a fundo são extremamente habilidosos e curiosos e a internet é uma mais valia.

5-Acha que existe sempre uma parte pessoal (a marca do designer) nos projetos?

Naturalmente que sim. Sabemos muitas vezes distinguir que determinados trabalhos são de determinados ateliers. Sem dúvida. Cá em Portugal é fácil de reconhecer trabalhos dos R2, Eduardo Aires, Barbara Says, Jorge Silva, Henrique Cayatte, dos P06 e por aí fora. No estrangeiro trabalhos da Paula Scher, Spiekermann, Sagmeister, entre muitos outros distinguem-se pela qualidade do seu trabalho. Como no trabalho de

arquitectura ou pintura. Depois há os trabalhos de entidade gráfica de uma determinada empresa que qualquer designer tem de seguir uma linha já determinada, essa imagem corresponde a essa empresa. No entanto foi desenhada e definida por uma equipa de designers, editores, accounts, etc. Como um livro, por exemplo. O principal é o autor, como é óbvio. No entanto existe a editora que publica o livro. Existe o editor que acompanha e aconselha o autor, o departamento de marketing, o designer, o paginador. Cada um acha que parte daquele livro é seu. Quando faço uma capa para um livro, tenho um lado egocêntrico de olhar para a livraria e para o livro e achar que parte do que está ali também me pertence, o mesmo acontece, com o paginador, editor, etc. Há uma envolvência pessoal, sim. Ainda bem que há.

6- Acha possível que o designer seja substituído pela máquina (Inteligência Artificial) em algumas fases de criação?

Infelizmente não tenho conhecimento suficiente para responder a esta pergunta. Acho sempre que este tema está ligado à ficção científica! Calculo que sim. Pelo menos a questão do tempo e de determinadas técnicas é substituída, sim.

7-O desenho continua a ser uma das grandes competências do designer? (se acha que o desenho não é uma das grandes competências do designer poderia dizer quais para si são as grandes competências do designer?) Porquê?

Acho que esta pergunta entre o desenho e as competências do designer são perguntas diferentes. Quanto ao desenho nem todos os designers sabem desenhar, mas há uma serie de soluções que substituem o desenho do designer por outros desenhos/imagens, ícones ilustrações que adquirimos em bancos de imagem. No entanto, saber desenhar é, à partida, uma vantagem para um designer, que faz com que se distinga de outros. É a sua própria ferramenta caso a desenvolva com qualidade. Quanto às grandes

competências do designer, na minha opinião, é saber responder, com qualidade, às questões e objetivos que lhe são pedidos.

ANNEX II – INTERVIEWS

Fernando Mendes Interview

1- What is your method for creating visual identities?

I like to start by defining a path, an approach to the context in which the brand operates. Then, my initial approach is always to try to solve using typography only, when I can, I develop the proposal from there. When it doesn't work or isn't enough to express the brand effectively, I move on to other possibilities. Typography always has an enormous weight in the graphic solutions I reach.

2- The "time" factor is often related to the logo creation method and is described as long/time-consuming. In turn, we live in a society in which the speed factor gains more and more importance. How do you think the method of creation will have to adapt to this society?

The visual identification process of a brand can be developed faster or slower. In some cases, the process moves forward very quickly, in days or weeks. In other cases, the limitations or problems encountered further delay the process. In any case, it is necessary to distinguish the professional and specialist work of a graphic designer from the almost ready-made solutions that can be found easily online. Giving visual appearance to a new, distinct, and original brand, also requires a distinct and original solution. Technology allows us to accelerate many of the steps that previously took us indefinite times. More radically, it is above all the possibility of making more mistakes and correcting quickly that allows this to accelerate the creative process. However, this acceleration, by itself, is not synonymous of higher quality in the graphic solutions developed.

3- Continuing this theme of time, which phase do you consider the most time-consuming in your process of conceiving visual identities?

The initial immersion in the context of the brand, especially as it is a context that is unfamiliar to me. This immersive ability of designers is exactly what most distinguishes them from other professionals and which, I anticipate, will make them key elements in almost all types of organizations.

4- How do you think the computer, and in turn, the internet, came to influence the way designers work today?

The Internet and technological advances have mainly come to democratize access to the tools used by designers. In a way, everyone today has access to these tools, and, to a certain extent, they manage to do part of the designer's work. However, most of the time, this type of approach lacks the methodology, specific knowledge, culture, and holistic vision of a professional designer (whether or not he is academically trained).

5- Do you think there is always a personal part (the designer's brand) in visual identity projects?

Historically, Design is distinguished from Art precisely because the designer's work object is always external to him, in the sense that the fruit of his thought is at the service of the other. The artist, more self-centered, is free to develop a world view without the commercial, institutional, or production constraints that the designer has to observe. That said, the boundaries between the two fields are increasingly blurred, allowing for hybrid areas of activity.

6- Do you think the designer can be replaced by the machine (Artificial Intelligence) in some stages of creation?

I have no idea and I don't particularly care. I think that the place of designers will gradually (or very quickly) migrate to the highest levels of decision within what

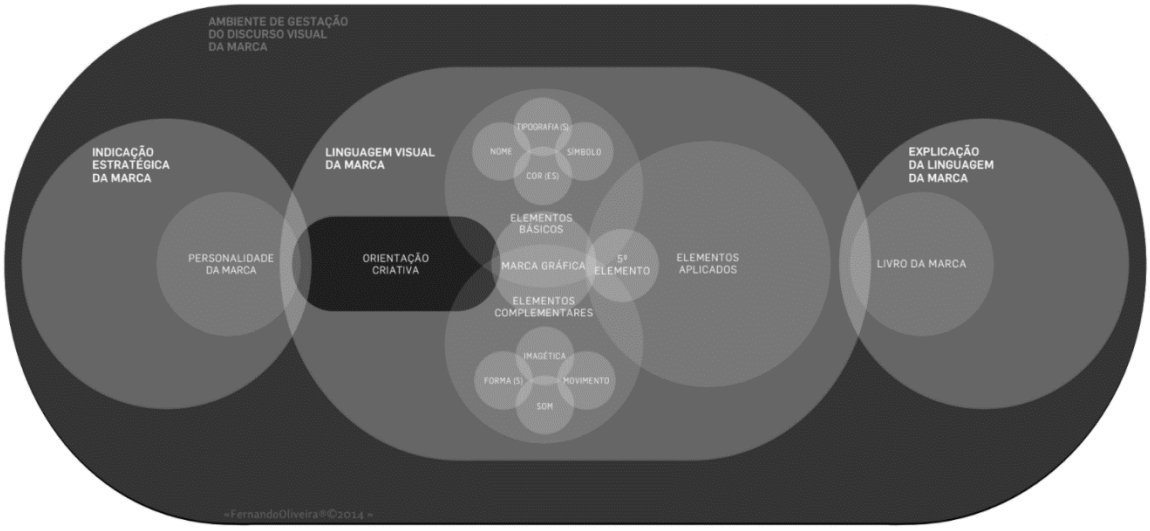
professional organizations will be in the near future.

7- Is drawing still one of the great skills of the designer? (if you think that drawing is not one of the great competences of the designer, could you say which for you are the great competences of the designer?) And why?

Yes. What distinguishes us is this ability to investigate through drawing, through a visual representation of information, making it simpler and easier to understand, by everyone and at all levels. Even in the new areas of Design, such as services or the digital product, this ability to make graphics simple remains an essential requirement of a designer. Otherwise, it would be better to call us something other than a designer.

Fernando Oliveira Interview

This interview was based on the final linear models developed in Diagramas&Marcas - Contributos sobre a utilização dos Diagramas na Construção e Análise do Discurso Visual das Marcas, Fernando Oliveira, 2013. These are:



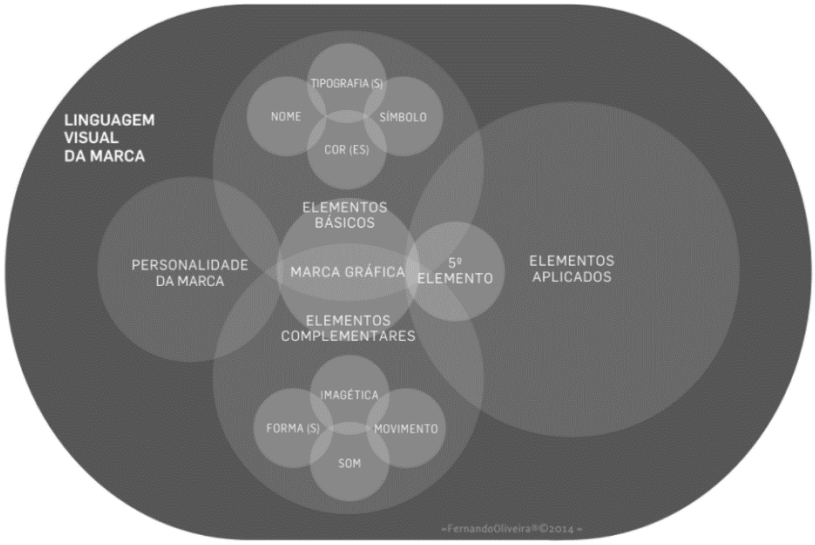


Fig. 21 (Figures 194 and 196 of the thesis of Fernando Oliveira) –" Final Linear Model for the generic representation of the Construction/Conception process of a Visual Identity System - Explanatory version"; "Final Linear Model for the representation of a Visual Identity System (used for Analysis / Diagnosis) - Explanatory version"

1- Why do you think this is the best model?

I don't think it's the best model. It's a model, not the best. He's one more. You have many processes, several authors who speak about various things and various processes.

2- But does it produce good/successful results?

It produces successful and fast results. And it manages to mix the decision process with creative thinking. Usually, this passes through the creative director of a particular place that gives the idea of that final input, and with that schematic, you can be the one to come up with a language. By eliminating or selecting elements.

3- The factor "time" is often related to the method of creating logos and is described as long/time-consuming. In turn, we live in a society in which the speed factor gains more and more importance. Do you think this method fits this society?

You have projects and projects. Projects that don't. Here are several important lines, but now I just want this, I come in with a fast design solution. I don't get the model to work, I get information with the experience I have working on and I start doing something, so I don't have to spend a lot of time and charge I don't know how much. In projects that you need to know your competitors and create something different give excellent results.

4- Continuing this theme of time, which phase do you consider the most time-consuming in the process of conceiving visual identities?

It is the stage of discussion of the definition of DNA, a personality that is sometimes not well defined. And then the junction. The first junction of the whole material. From the moment that you put together everything that is part of that universe and then schematizes it from there is to synthesize. Even if there are languages, a synthesis that goes there, and another that goes to another side, you already have it and then just take it out. And then implement. Because from the moment you have the creative guidelines, you must start implementing the concept of design. And this already has to do with the time of work.

5- So the first phase and the last phases are the ones that take the longest and that you would not remove from the whole process?

I do not do the last phase sometimes I pass to other people. And I would not withdraw because it is the link between the brand and the market. Now, as long as you are losing here this phase of the elements is the most important. Because it is the elements that give you knowledge one by one of those codes all within the system and at the same time

assign value to each of the elements. You will start to give different importance to the connection of the name with the strategy, the importance of typography to symbols, and to what it has with history with time. That value begins to be clarified to your clients and even if it is a work of creative direction and designer together, the same thing.

6- At the conclusion of your dissertation you say that: "the process does not necessarily follow the logic of rationality" even if this is a fact, do you not think that, currently, a designer's working method tends to become more and more rational?

No. But each person has their processes and things are not linear. Never. Now, this is different from being rational in your analytical decision-making ability in your decision-making ability through qualitative materials. You have to know how to decide and the scheme helps you decide. You have to be rational because the decision increases your exponential evolution, if you don't decide you don't evolve, but at the same time, it is the emotional part that brings spices to your customers. Your experiences, etc. Especially because it conditions the collection of information when you search for a certain DNA. Experience brings things.

7- Do you think there is always a personal part (the designer's brand) in visual identity projects?

In everything. Because it's your working time, what you've been learning. Picasso has a story about that. Someone asked you to make a drawing at the airport. He grabbed a paper and in 30 seconds he made the lady's face and handed it to her. The lady said, "thank you" and he said, "thank you no it's 20 thousand euros". And the lady said then, "but you did it in 30 seconds" and he says "no it took 40 years". You are giving a very personal input there, but you are based on your experience, rationally focused on us.

8- How do you think the computer, and in turn, the internet, came to influence the way designers work today?

The machine and the technologies there is no way for you to get back to that. They even help you to assemble ideas as long as you control your plasticity, if you stick to the language of that, then everyone can do the same. Therefore, originality is equally logical. The digital issue the computer even helps you to control the detail and the detail, you draw and it becomes easy to reproduce. Then there is this thing that technologies can also interfere in the emotional and visual component and the perverse side of brands is to control people's lives. You can measure in what situations people need things.

9- Don't you think that the internet can help projects start to look very similar to each other?

There is one thing that I don't understand, in the world people, have this idea of diversity and being almost unique tribes, but at the same time, the world tends to have fewer things. Fewer jobs, fewer companies, fewer people working, and then the trend is that brands are like coca-cola, that is, more global. You lose your local elements and grab things for costs and Starbucks is another example.

10- Do you think the designer can be replaced by the machine (int. Artificial) in some phases of creation?

I don't know. There are situations for example in the logos, and when reading the markets as you create the algorithm it will read all the patterns it can. I already achieved this through a program that read Instagram and that through hashtags it makes you mosaics of things published on that topic. So, we introduced the keywords of Lisbon and we managed to understand what in terms of tourism people consume more.

So maybe in this initial part will help...

The diagnosis helps you to know more about the persona and the markets. So, this analysis process helps a lot. The analysis process was born for you to look by comparison. This process then has to do with a simple thing that is in most complex courses, medicine, law, marketing, economics, finance, everyone works with schemes, because of the abstract thinking you (design students) don't. The classes that have information design are for solving infographics problems and this process what it does is to transport the reality of the scheme to the brand process and when you do that you have a very important thing that is the comparison you establish the parallelism and similar things so you can read the market. Technologies help a lot in this phase when it is the concession phase, and all this is already basically formatted or should be.

11- So do you think technology can help in two stages or just one?

More in the first, the analysis. But either way, you have to educate, when you get to that point you have to educate the brand about the universe of creative guidance. This (phase of synthesis and creation of graphics) may have less technology, but you can manufacture the whole brand from the algorithm, the brand from "Oi", from "MIT", they are all from the algorithm.

12- So do you think that design remains the great competence of the designer?

No. I never thought that. The best competence is the head. Design defines society. Art moves forward. You work for that society. The product you make is a reflection of history is a piece of anthropology. If you are going to talk about product design, the Space Shuttle is made by a product designer, the cars you ride, the chairs where you sit. If you are going to talk about interior architecture, they are the ones who manufacture experiences that are very important in people's lives, experiences of houses, cafes, restaurants.

13- So you think that design is now more about experiences and not so much the practical part, more the mind?

It was always the mind, then you produce it through the practice of drawing. Drawing has enormous importance in the dream, it makes the dream come true and the drawing is great. Because of the dream materializes. But it is the head, your reading of society, your culture, and your contribution that you can make, and it all comes from the head. Of course, methodologies are important, but it's not just the design, it's a whole. You may not even know how to draw very well and be a good designer. If you have the design component, it is easy to materialize things that are left with the registration that you can then use. Drawing is an asset if you only know how to plan it is also an asset because it materializes the dream is the first thing, but in design, it is the question of the head and the way you see the world. That's what makes you grow in some way to influence people and inspire people. The design has to be there.

Pedro Magalhães Interview

1- What is your method for creating visual identities?

I'm not a designer, I'm an art director nowadays, I don't even do art direction, I'm a creative director, I'm an executive director which is even more than the creative director so I'm more and more removed from pure creativity, which honestly is the most interesting, but you are advancing in your career and you are moving away from the process, of these methods. I don't have any method. And I think that creativity, not in design, but in advertising, things are so fast and done in such a short time that there is no traditional fixed methodology, there is no rule. I think it is depending on the time you have, the team you have. I can't tell you "oh it's design thinking, etc." I don't have a

method and I've had a good career, so the fact that I don't have a method hasn't hurt me at all, I think.

2- Even at the beginning of your career, did you not reach a point where you felt you should come up with a design method?

No, I teach. I teach at IADE and I teach at the World Academy, I teach at Restart, always with creativity and design, drawing, and art direction. When we got to the part of explaining what we did, they are classes given much more by experience, by theoretical knowledge. I got to the part where I explained my creative process or the generation of ideas, the creation of ideas, and I said, "I don't know". I cannot explain to you how this is done. Of course, you have some steps to create a brand, but I can't tell you a recipe. I don't have a recipe.

3- You do it out of instinct?

There are things, I don't know... For example, perhaps the most enriching work I did in this field was a few years ago, about 10 years ago, the creation of an Optimus brand. To enter the market with Yorn. Vodafone had Yorn, therefore the newest brand that would look for younger customers and thus make them Vodafone customers for the rest of their lives and, therefore, that was Yorn's great intention. A completely different language, completely disruptive, innovative at that time. They were talking only to that age group, their parents didn't understand anything. And then Optimus woke up a few years later and decided to make a brand to enter the same market and do the same thing, to get new customers. And the agency where I was at Euro RSCG, which is now called HAVAS, and they just won Optimus. They gave us a brief on brand creation, naming, design, graphic identity, packaging, communication, everything... and it was very fun, very interesting and that's what we did. And once again there I am telling you about my experience. Nobody wrote a method on a board. What we did was we got

together, all the professionals who would be involved, that is, from digital, designers, strategists to advertising critics, and we were all in a room. The strategic planners made the plan, that is, they started to think even before we started to think, they assimilated all the information they had funneled and said that the way is here, this is where you guys need to go. And from then on, we thought not all at the same time, if it wasn't chaotic. We were all in the same room thinking, but our starting point was the same, we all left that room each to its own space, we agreed to meet in a week to see ideas. Everyone contributed to the same thing there was no division, for example, advertising must do advertising. Everyone thought of the same thing, they started with the name and why that name. The name immediately gave some ideas, then graphic solutions. Because our head works like this, it unfolds and walks, it's kind of chaotic, but it walks around. And so, the process went on... It was one of the most fun, most incredible processes and I'm always remembering that process. It was “let’s go guys, let’s all go” and we did the Optimus tag. The brand at the time was the tag that later gave birth to WTF. WTF is the daughter of TAG.

4- In these projects, what do you think there is always a part of you? Even if it is not yours when you work with other designers do you feel that each of them leaves a personal part in the projects?

Ever. I think that when you're creative, you always give something of yourself. It's inevitable.

5- Even with the customer putting pressure, do you think that even then ...?

Yes... yes... At the end of the project, you can say that this has nothing to do with what I did and has nothing to do with me, it happens to me several times, but it also happens many times it has to do with me and I did this. I usually say in class, and here I also say to the creatives, I think that those who create with truth and intensity, those who feel it

(and I think most people do) of course create with the brain, the brain is our main tool. But I think that in addition to the brain, you have to create with the heart. I think that ideas do not come from the brain, but from the heart. You create with your guts because if you don't create with your guts it doesn't matter. It's kind of an unpolished phrase, but I say this on purpose. It must always come from within. However, you must move away emotionally from ideas, they are then stirred up and sinker and altered. And you must have that distance, you cannot be offended because they change an idea, you cannot be offended because they are not saying bad things about you, they are talking about that idea. The idea is that you are not wrong. And we still have another thing that we have to do talking about distance, which is, I can't do one thing for myself. I am not creating for myself, I am creating for that communication director, for that brand, I am creating for a much larger identity that is a brand. I have to create for Super bock, for Glovo, or Volkswagen, I'm creating for the doctor X. And it is often also the customer who has a hard time realizing this. I tell them many times to think that this is not for you, but it is human it is normal that you let it go by your taste, it is normal.

6- Having a career of almost 30 years, it has followed the turn of the century, all the new technologies in which everything has become faster and constantly changes, how has this change affected your work?

It's incredible. But look, it wasn't at the turn of the century that it turned. I think that in recent years, of course, things always evolve the speed of things has increased. When I left IADE and started working, we were starting to use computers, the Macintosh entering the market forces. And I, perhaps, was the last generation who still did many things by hand, but who later started using the computer. I still caught the end of doing things by hand, but then the computer came on and there were art directors older than me. I was 23, 24, or 25, but imagine those who were 28 or 30 did not want computers. They rejected computers. And that was one of the changes that took a few years and I think that at the end of the 20th century, that is 1999 or 2000, we started to do the digital.

Customers started asking to make websites, asking for things that only happened on the internet. And even in our life, for example, I remember going to see the ads that were made in Brazil, I worked with a Brazilian and he was always researching the ads that were made in Brazil, and I started to see and use the internet almost as if it were a tool, for us to work and to see what others were doing. We heard about a campaign and we were not waiting for it to arrive, we would see it quickly. And things have been accelerating and accelerating at a much faster pace, but in the last 10 or 5 years, the difference is huge. It's incredible. I went out to make a change in my career that is difficult, and it continues to be difficult that I grew up, I had years working in advertising agencies and a great campaign was: television, print, billboards, and radio. And that was it, always. And that already came out naturally. When digital began to enter, television lost much importance, the press disappeared the billboards continue, but the radio is not heard, there is no radio. The radio is a great medium and I think that clients forgot to make the radio. But now we end up doing lots of things, which sometimes don't even come out. And that made me leave traditional agencies and go to digital agencies. I made this change twice. First, I went to ExcentricGrey, and then to Fullsix, which is a completely digital company, to compel me to enter these media as well. For example, at Fullsix, I didn't understand anything of what they said, they speak lots of methodologies and words that I didn't know. And they had to explain it to me later. But there was one more important thing, whether in digital or traditional media, the idea. How the idea is expressed.

7- But do you think that this evolution and the fact that we are all in contact and constantly see each other's work that some creativity is lost, and the works start to become very similar to each other?

Perhaps. That's funny. Because I hadn't thought about it, but it's true. Because you often favor the environment, the form, and not what is behind the idea. Often, and without wanting to criticize (I don't want to criticize) but I also make mistakes and older people

too. But one thing I noticed, which happens in some agencies, is that the creative directors put the media, the form, the technology, and not the idea very much forward. Several times I would come up with ideas, campaigns, and proposals, show them and they said that this was a campaign that could be done by any other agency, I don't see technology that is what makes us different. But I said that before technology, an idea must come, that's what makes the difference. It's good ideas, not technology. Anyone can use the same technology.

8- Do you think that design remains the great competence of designers?

I think it helps a lot. I think so. Because it means one thing, you draw well or you must have other ways, and this is not very easy. I draw well, even since I was a kid and that's why I came here straight away, I had nothing to do with the anguish of teenagers of "I don't know what to do" I wanted to be an architect, but then I realized that I wasn't an architect, I was a designer, then I realized that I wasn't really a designer, I was an art director. It helps a lot because it is much easier, the orders that your brain sends to the hand or paper are very fast, microseconds, and I need to draw an idea if I don't draw an idea it stays here in my head. And then when I design it, when I draw it on the computer, it may no longer be the same thing, there will be a lack of spontaneity, some soul that the human arm has. And so, I think it is very important to draw, I have seen designers doing great jobs that did not know how to draw, but I think it helps.

9- Do you think there is any competence greater than drawing?

Creativity. Your imagination, your ability to design a solution. I think that both in advertising and in design it is much more important, but if you have both it is even better.

10- Do you think the machine can replace the designer completely or only in some phases of the design process?

To replace some parts, yes, to replace the designer, I hope not. I hope not, because it lacks that spontaneous, human part that the machine does not have. It's funny because we are talking a lot and in the last few days I talked about artificial intelligence here at the agency, and we are looking for an idea that uses artificial intelligence but that in the end, we will gain to artificial intelligence, we will explain that maybe even what looks fantastic may cause problems, such as human value, an interpretation that can only be human, a solution that only we can give and the machine does not. However, it will solve things like we wouldn't, it will work with data, it will take all the data and it will make a perfect solution, and quickly. That we wouldn't do.

11- Do you think it is possible to integrate the machine now in your work context, to generate ideas?

Maybe it would help me a lot. I think that in practice it will not exist anytime soon. But if there is a day, maybe it will help me a lot. For example, we made a movie, which we love a lot, which was Vodafone's Christmas story and I don't know if a machine could do that. Emotion, making people cry, angry, brothers, family. I don't know if the machine would be able to build that solution. Because it's not that simple. We didn't make this list, we had a theme, and we worked on the theme. The theme was anger and stubbornness. The fact that people are all together and like each other must always be more important than being angry, that was the starting point. But the film is not born instantly because I came to this reasoning. And I don't think the machine would have reached that solution either. I think something very important for your work, communication and I'm talking about design being communication, therefore design is a conversation between human beings. That is, brands that are non-human identities are worked on, made, and manufactured by human beings. Run by humans and is a conversation between humans. So, it has to be something that we understand, that we

perceive, that we see ourselves, that we can thrill or have fun, or entertain. And a machine will never have that side, no matter how effective it is, and however broad it has solutions, I think that the human part will always be lacking. Now maybe I will try to solve a lot of things. Artificial intelligence is scary. It is a mixture of fascination. I think that as long as we can fold and be responsible with the machines, I think that things will always work to help us, to get closer, to solve our lives and make it simpler. We will always have importance in this process if we don't do anything and the machines did everything. We were just at home getting fat.

I think and I don't know if you agree with me that maybe machines can generate paths…

Yes, generate paths. But look back to the methods, there are things that the creative department and the strategy department work with you that can help the brand. You have what is the tension of the brand, the tension that it creates, you have several points that can help you make a path until you reach a great idea. Until you get the brand idea. What is the purpose of the brand, what does it mean, what message does it have.

12- Is it this phase that takes the longest to reach the great idea?

Yes, but I think it's a lot of strategies, it can be done with creatives. After reaching the great idea, the message, the purpose of the brand, we start to think about how to convey this message to clients. And then the method is chaotic. Sit down and think and concentrate. I worked with several creatives who said that thing, that way that is so and so, but I thought "but that way is already done". Let's think about a new one. Because I am repeating things, so I am repeating formulas. Creative work is very distressing. But it's a lot ... When you arrive at the idea is incredible. It is a physical sensation. When students ask me how to create an idea, I usually say it just pops up like an explosion, but I can't explain how.

Rita Murias Interview

1- What is your design method?

Until a few years ago, the way to receive a description for a project (briefing) was through a face-to-face meeting, where information and content for the work to be developed were transmitted. It still happens in some cases, but it is less and less common. Currently, the most common way is to receive the briefing/descriptive and objectives by email. From here, I always develop, in a first phase, research and it is, perhaps, the part that takes the longest time. The slower second part will be the choice of typography, whatever the type of work. Then there is the development of a series of models/studies for the proposal, depending on the type of work, usually, I send more than one version. I am waiting for the customer feedback, which will be in person or not, I make the changes and send files until the final phase. This process varies whether they are book covers, pages, or logos. An interesting case was when I had to develop an editorial project, where I was responsible for preparing the content. I was writing the texts as I was developing the layout, changing the design as I applied new content (and vice versa) and this was very interesting because it verified that the organized process that I always had, was changed when the contents did not depend on third parties.

2- The factor "time" is often related to the design method being described as long/time-consuming. In turn, we live in a society in which the speed factor gains more and more importance. How do you think the design method will have to adapt to this society?

Online communication has accelerated any work process. Even though the design method tends to be slow. However, it depends on the client and how the client considers us fundamental in this work. That is if we are one more designer in a list of many, in which we are easily replaced, the time taken by the conceptual process before

presenting a proposal is not always valued. And only speed counts in many cases. If clients know that I am quick to work, sometimes that is the first criterion. When we are specially invited to a particular job, the question of time and whether there is a project process or method is already valued and that is when a job goes best.

3- Continuing this theme of time, which phase do you consider the most time-consuming in your design method?

It is the part of the research where I try to find work tools to develop my design: projects similar to the intended one, source of inspiration, research on the topic to be developed, author, materials, printing techniques, finishes, etc. Then the phase of developing the layout and choosing the typography, cover, etc., goes on.

4- How do you think the computer, and in turn, the internet, came to influence the way designers work today?

The working process before the computer was naturally slower. We did not have access to tools that exist on the internet, we would have to go to libraries or ask for explanations from ateliers or specialized technicians, or send to other professionals to finish certain jobs, especially with images.

There is currently great superficiality and little in-depth research. The computer helps and facilitates a lot. However, seeing some students, they will not always investigate the origin of things they are often on Wikipedia, Pinterest, etc. There is a lot of information acquired over the internet that can help designers a lot in their work processes. For those who go deeper, they are extremely skilled and curious, and the internet is an asset.

5- Do you think there is always a personal part (the designer's brand) in the projects?

Naturally, yes. We often know how to distinguish that certain works belong to certain workshops. No doubt. Here in Portugal it is easy to recognize works by R2, Eduardo

Aires, Barbara Says, Jorge Silva, Henrique Cayatte, P06, and so on. Abroad, works by Paula Scher, Spiekermann, Sagmeister, among many others are distinguished by the quality of their work. As in architecture or painting work. Then there are the works of the graphic entity of a certain company that any designer has to follow an already determined line, that image corresponds to that company. However, it was designed and defined by a team of designers, editors, accounts, etc. Like a book, for example. The main one is the author, of course. However, there is a publisher that publishes the book. There is the editor who accompanies and advises the author, the marketing department, the designer, the pager. Each one thinks that part of that book is his. When I make a cover for a book, I have an egocentric side of looking at the bookstore and the book, and finding that part of what is there also belongs to me, the same happens with the pager, editor, etc. There is personal involvement, yes. I'm glad there is.

6- Do you think the designer can be replaced by the machine (Artificial Intelligence) in some phases of creation?

Unfortunately, I don't have enough knowledge to answer this question. I always think that this theme is linked to science fiction! I think so. At least the question of time and certain techniques are replaced, yes.

7- Is drawing still one of the great skills of the designer? (if you think that drawing is not one of the great competences of the designer, could you say which for you are the great competences of the designer?) Why?

I think this question between drawing and the designer's skills are different questions. As for the design, not all designers know how to draw, but there are a series of solutions that replace the designer's drawings with other drawings/images, icons, and illustrations that we acquire in image banks. However, knowing how to draw is, at the outset, an advantage for a designer, who distinguishes himself from others. It is your

tool if you develop it with quality. As for the great skills of the designer, in my opinion, it is knowing how to respond, with quality, to the questions and objectives that are asked.

ANNEX III – LOGO CHARACTERIZATION

Figurativo	Organic	Monochrom Static	Technology	Apple
Abstract	Random	Monochrom Static	Sportswear	Nike
Alphabetica	Random	Monochrom Static	Restoration	McDonald
Abstract	Random	Polychroma Static	Drinks	Pepsi
Abstract	Geometric	Polychroma Static	Sport	Jogos Olímpicos
Abstract	Geometric	Monochrom Static	Sportswear	Adidas
Abstract	Geometric	Monochrom Static	Automotive	Audi
Alphabetica	Geometric	Monochrom Static	Technology	LG
Abstract	Geometric	Monochrom Static	Automotive	Opel
Figurativo	Organic	Polychroma Static	Oil and gas	Shell
Figurativo	Geometric	Monochrom Static	Mass Media	CBS
Figurative	Random	Monochrom Static	Restoration	Starbucks
Figurative	Random	Monochrom Static	Social media	Twitter
Alphabetica	Random	Monochrom Static	Tourism	Airbnb
Figurative	Random	Polychroma Static	Fashion	Lacoste
Alphabetica	Random	Monochrom Static	Fashion	Channel
Alphabetic	Random	Monochror	Dynamic	Museum	Brooklyn Museum
Alphabetic	Random	Polychrom	Dynamic	Museum	Museum of Arts and Design
Figurative	Geometric	Polychroma Static	Social media	Instagram

Abstract	Geometric	Monochrom	Static	Museum
Figurative	Geometric	Monochrom	Static	Technology
Figurative	Random	Monochrom	Static	Bank
Abstract	Random	Monochrom	Static	Telecommunications
Abstract	Random	Monochrom	Static	Automotive
Figurativo	Organic	Polychroma	Static	Mass Media
Abstract	Geometric	Monochrom	Static	Financial services
Alphabetica	Geometric	Monochrom	Static	Museum
Figurative	Geometric	Monochrom	Static	Museum
Alphabetica	Geometric	Monochrom	Static	Museum
Alphabetica	Geometric	Monochrom	Static	Museum
Alphabetica	Random	Monochrom	Static	Museum
Figurative	Random	Polychroma	Static	Site
Abstract	Random	Polychroma	Static	Tourism
Figurative	Organic	Monochrom	Static	Tourism
Alphabetic	Random	Monochror	Dynamic	Museum
Alphabetica	Geometric	Monochrom	Static	Museum
Alphabetica	Geometric	Polychroma	Static	Museum
Alphabetica	Geometric	Polychroma	Static	Museum


Design Museum Gent


Android


Barclays


AT&T


Mercedes-Benz


NBC


Allianz


National Nordic Museum


MuFo


Les Catacombes de Paris

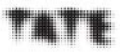

Museo de Arte Moderno de Buenos Aires


Sydney Living Museums


Tripadvisor


Trivago


Skyscanner


TATE Museum


National Museum in Warsaw


Woodmere Art Museum


Derby Museums

Figurative	Random	Monochrom	Static	Museum
Alphabetic	Random	Polychrom	Dynamic	Museum
Alphabetic	Random	Polychrom	Dynamic	Museum
Abstract	Organic	Polychroma	Static	Museum
Alphabetic	Random	Polychrom	Dynamic	Museum
Alphabetica	Organic	Monochrom	Static	Museum
Figurative	Geometric	Monochrom	Static	Museum
Abstract	Geometric	Monochrom	Static	Museum
Figurative	Organic	Monochrom	Static	Museum
Abstract	Random	Monochrom	Static	Museum
Abstract	Organic	Polychroma	Static	Museum
Alphabetica	Organic	Monochrom	Static	Museum
Abstract	Random	Monochrom	Static	Museum
Abstract	Random	Monochrom	Static	Museum
Figurative	Random	Monochrom	Static	Museum
Alphabetic	Random	Polychrom	Dynamic	Museum
Alphabetic	Random	Monochror	Dynamic	Museum
Alphabetica	Random	Monochrom	Static	Museum
Alphabetica	Random	Monochrom	Static	Museum

Carnegie Museum of Natural History

Museum of Modern and Contemporary Art, Korea

Natural History Museum

Swedish Museum of Natural History

Swedish History Museum

American Swedish Historical Museum

Carpigiani Gelato Museum

Canada Aviation and Space Museum

Canada Agriculture and Food Museum

Canada Science and Technology Museum

Iziko Museums

National Waterfront Museum

National Museums Scotland

Museum of Science, Boston

Royal Alberta Museum

MassArt Art Museum

Design Museum Boston

Nationaal Militair Museum

MARINIERS MUSEUM

Alphabetica	Random	Monochrom	Static	Museum	MARINE MUSEUM
Alphabetica	Random	Monochrom	Static	Museum	MARECHAUSSEE MUSEUM
Abstract	Geometric	Polychrom	Dynamic	Concert Hall	Casa da Música
Abstract	Geometric	Polychrom	Dynamic	City	Bolonha
Alphabetica	Geometric	Polychroma	Static	Museum	Newcastle I
Alphabetica	Random	Polychroma	Static	City	Newcastle Museum
Alphabetic	Random	Polychrom	Dynamic	City	Melbourne
Figurative	Random	Polychroma	Static	Insurance company	Médis
Abstract	Geometric	Monochrom	Static	Retail	Target
Alphabetica	Geometric	Monochrom	Static	Retail	Continente
Figurative	Organic	Monochrom	Static	Bank	Montepio
Abstract	Random	Monochrom	Static	Bank	Santader
Figurative	Geometric	Polychroma	Static	Restoration	Domino's
Alphabetica	Random	Monochrom	Static	Automotive	Volkswagen
Figurative	Random	Monochrom	Static	Automotive	Peugeot
Abstract	Random	Monochrom	Static	Health	CUF
Figurative	Random	Monochrom	Static	Environmentalism	World Wide Fund for Nature
Abstract	Geometric	Polychroma	Static	Financial services	Mastercard
Alphabetica	Random	Polychroma	Static	Financial services	Paypal

Abstract	Geometric	Monochrom Static	Bank	 JPMorgan Chase & Co.
Alphabetica	Random	Monochrom Static	Games	 Xbox
Alphabetica	Random	Monochrom Static	Design Software	 Adobe Inc.
Alphabetica	Random	Polychroma Static	Design Software	 Autodesk
Abstract	Random	Monochrom Static	Music Software	 Spotify
Abstract	Random	Monochrom Static	Games	 Ubisoft
Figurative	Geometric	Monochrom Static	Technology	 Windows
Alphabetica	Random	Monochrom Static	Browser	 Bing
Figurative	Random	Monochrom Static	Music	 Rolling Stone
Figurative	Random	Monochrom Static	Tourism	 HomeAway
Figurative	Random	Polychroma Static	Tourism	 Expedia
Abstract	Random	Polychroma Static	Aviation	 American Airlines
Abstract	Geometric	Monochrom Static	Aviation	 Delta Air Line
Figurative	Random	Monochrom Static	Mass Media	 Playboy
Alphabetica	Random	Monochrom Static	Energy	 Westinghouse Electric Corporation
Figurative	Random	Monochrom Static	Mass Media	 PBS
Abstract	Geometric	Monochrom Static	Watchmaking	 Swatch
Abstract	Random	Monochrom Static	Footwear	 Converse
Alphabetica	Random	Polychroma Static	Drinks	 Gatorade

Abstract	Random	Monochrom Static	Telecommunications	 Sprint
Figurative	Random	Monochrom Static	Automotive	 Jaguar
Alphabetica	Random	Monochrom Static	Consumer goods	 Unilever
Figurative	Random	Monochrom Static	Automotive	 Dodge
Abstract	Random	Monochrom Static	Food industry	 Olá
Abstract	Random	Monochrom Static	Wool industry	 Woolmark
Abstract	Random	Monochrom Static	Telecommunications	 Vodafone
Abstract	Random	Monochrom Static	Sportswear	 QuickSilver
Figurative	Random	Monochrom Static	Book Publisher	 Porto Edito
Abstract	Random	Polychroma Static	Dairy products	 Lactogal
Figurative	Organic	Monochrom Static	Dairy products	 Matinal
Figurative	Random	Monochrom Static	Aviation	 Ryanair
Figurative	Random	Monochrom Static	Aviation	 Lufthansa
Abstract	Random	Polychroma Static	Aviation	 Iberia
Alphabetica	Random	Monochrom Static	Aviation	 Transavia
Abstract	Random	Polychroma Static	Aviation	 LATAM Airlines Brasil
Abstract	Random	Monochrom Static	Aviation	 Air France
Abstract	Random	Monochrom Static	Aviation	 Swiss International Air Lines
Abstract	Geometric	Polychroma Static	Aviation	 Azul Linhas Aéreas Brasileiras

Alphabetica	Random	Monochrom Static	Aviation	 Air Europa
Figurativo	Geometric	Monochrom Static	Aviation	 KLM
Abstract	Random	Polychroma Static	Aviation	 British Airways
Abstract	Geometric	Monochrom Static	Aviation	 Brussels Airlines
Figurative	Organic	Monochrom Static	Aviation	 Azores Airlines
Abstract	Random	Monochrom Static	Aviation	 Luxair
Abstract	Random	Polychroma Static	Aviation	 Eurowings
Figurative	Organic	Polychroma Static	Bank	 Caixa Central de Crédito Agrícola Mútuo
Figurative	Organic	Monochrom Static	Bank	 Banco Português de Investimento
Figurative	Organic	Monochrom Static	Bank	 EuroBic
Abstract	Geometric	Monochrom Static	Bank	 Banco Popular Español
Figurative	Random	Monochrom Static	Bank	 Banif
Abstract	Organic	Polychroma Static	Bank	 Caixabank
Figurative	Random	Monochrom Static	Sportswear	 Puma
Alphabetica	Random	Monochrom Static	Sportswear	 New Balance
Abstract	Random	Monochrom Static	Sportswear	 Under Armour
Alphabetica	Random	Monochrom Static	Sportswear	 ASICS
Abstract	Geometric	Monochrom Static	Sportswear	 Umbro
Abstract	Random	Monochrom Static	Sportswear	 The North Face

Figurative	Random	Monochrom Static	Sportswear	 Le Coq Sportif
Figurative	Random	Polychroma Static	Restoration	 Wendy's
Figurative	Random	Monochrom Static	Restoration	 Taco Bell
Figurative	Random	Monochrom Static	Restoration	 Little Caesar
Figurative	Random	Polychroma Static	Restoration	 Buffalo Wild Wings
Figurative	Geometric	Monochrom Static	Museum	 Museu Nacional dos Coches
Alphabetica	Random	Monochrom Static	Museum	 Museu Coleção Berardo
Abstract	Geometric	Monochrom Static	Museum	 Museu Nacional Machado de Castro
Abstract	Geometric	Monochrom Static	Museum	 Museu Nacional de Arqueologia
Figurative	Random	Monochrom Static	Museum	 Museu do Dinheiro
Alphabetica	Random	Monochrom Static	Museum	 Galleria degli Uffizi
Alphabetica	Random	Monochrom Static	Browser	 Internet Explorer
Abstract	Random	Polychroma Static	Browser	 Mozilla Firefox
Figurative	Random	Polychroma Static	Software	 Safari
Abstract	Random	Polychroma Static	Browser	 Google Chrome
Alphabetica	Random	Monochrom Static	Browser	 Opera
Abstract	Random	Monochrom Static	Software	 Steam
Abstract	Random	Monochrom Static	Music	 Houston Grand Opera
Abstract	Random	Monochrom Static	Museum	 Australian National Maritime Museum

Abstract	Random	Polychroma Static	Museum
Alphabetica	Random	Monochrom Static	Museum
Figurative	Random	Polychroma Static	Museum
Figurative	Random	Monochrom Static	Museum
Figurative	Random	Monochrom Static	Museum
Figurative	Random	Monochrom Static	Museum
Figurative	Organic	Monochrom Static	Museum
Figurative	Random	Monochrom Static	Museum
Abstract	Geometric	Monochrom Static	Museum
Abstract	Geometric	Monochrom Static	Museum
Figurative	Random	Monochrom Static	Museum
Figurative	Random	Monochrom Static	Museum
Alphabetica	Random	Monochrom Static	Museum
Alphabetica	Random	Monochrom Static	Museum
Abstract	Geometric	Monochrom Static	Bank
Abstract	Geometric	Monochrom Static	Museum
Alphabetica	Random	Monochrom Static	Museum
Figurative	Geometric	Monochrom Static	Museum
Alphabetica	Geometric	Monochrom Static	Museum

Smithsonian Institution

Elysée Museum Lausanne

Greater Sudbury Museum

Musée de la ferme Anderson

Copper Cliff Museum

Musée du Moulin à fleur

Rayside-Balfour Museum

Shanghai Art Museum

Mississippi Civil Rights Museum

Museum of Mississippi History

Deutsches Museum

Deutsches Hygiene-Museum

Deutsches Design Museum

Deutsches Historisches Museum

Deutsche Bank

Museum für Film und Fernsehen

Telfair Museums

Chrysler Museum of Art

Montréal Museums

Abstract	Organic	Polychroma Static	Museum
Abstract	Geometric	Monochrom Static	Museum
Alphabetica	Geometric	Polychroma Static	Museum
Abstract	Geometric	Polychroma Static	Artistic Organization
Abstract	Random	Monochrom Static	City
Abstract	Geometric	Monochrom Static	Museum
Abstract	Geometric	Monochrom Static	Museum
Alphabetic	Random	Polychrom	Dynamic	Museum
Abstract	Geometric	Monochrom Static	Museum
Alphabetica	Random	Monochrom Static	Museum
Alphabetica	Random	Polychroma Static	Museum
Abstract	Geometric	Monochrom Static	Museum
Abstract	Geometric	Polychroma Static	Museum
Alphabetica	Geometric	Polychroma Static	Museum
Abstract	Random	Monochrom Static	Museum
Figurativo	Random	Polychrom	Dynamic	Museum
Abstract	Geometric	Monochrom Static	Museum
Alphabetica	Random	Monochrom Static	Museum
Alphabetica	Random	Monochrom Static	Museum


Montréal insectarium


Musée d'art contemporain de montréal


Musée des beaux-arts de Montréal


Conseil des arts de Montréal


Montreal


Musée de la civilisation


Today Art Museum


Portland Art Museum


National Railway Museum


National Museums Liverpool


Museums Alaska


Tokyo metropolitan art museum


Triton Museum of Art


Museum of contemporary art Los Angeles


Museum of contemporary art san diego


The story museum


Speed Art Museum


The musical museum


Australian Museum

Alphabetica	Random	Polychroma	Static	Museum
Abstract	Geometric	Monochror	Dynamic	Lab
Abstract	Random	Monochrom	Static	Software
Abstract	Random	Monochrom	Static	Technology
Abstract	Geometric	Monochrom	Static	Technology
Abstract	Random	Monochrom	Static	Technology
Alphabetica	Random	Monochrom	Static	Telecommunications
Abstract	Random	Monochrom	Static	Automotive
Abstract	Random	Monochrom	Static	Automotive
Abstract	Organic	Monochrom	Static	Technology
Figurative	Geometric	Monochrom	Static	Watchmaking
Abstract	Random	Monochrom	Static	Watchmaking
Abstract	Random	Monochrom	Static	Watchmaking
Alphabetica	Random	Monochrom	Static	Watchmaking
Abstract	Random	Monochrom	Static	Watchmaking
Abstract	Geometric	Monochrom	Static	Watchmaking
Alphabetica	Random	Monochrom	Static	Fashion
Alphabetica	Random	Monochrom	Static	Watchmaking
Alphabetica	Random	Monochrom	Static	Fashion


Asia — Europe Museum Network


MIT media


Atari


Nvidia


Oculus VR


Cisco


Motorola


Hyundai


Daewoo


Ocado


Rolex


Patek Philippe


Hublot


Omega


Breitling


Tudor Watches


Gucci


Panerai


Louis Vuitton

Alphabetica	Random	Monochrom Static	Watchmaking	 Tissot
Figurative	Random	Monochrom Static	Fashion	 Versace
Alphabetica	Random	Monochrom Static	Fashion	 Fendi
Abstract	Random	Monochrom Static	Sportswear	 Lululemon
Figurative	Random	Monochrom Static	Sportswear	 Gymshark
Abstract	Random	Monochrom Static	Sport	 US Open Tennis Championships
Figurative	Random	Monochrom Static	Mass Media	 Animal Planet
Abstract	Geometric	Polychroma Static	Health	 Flatiron Health
Abstract	Geometric	Monochrom Static	Automotive	 ClearMotion
Abstract	Geometric	Monochrom Static	Mass Media	 National Geographic
Abstract	Geometric	Monochrom Static	Insurance company	 State Farm
Abstract	Geometric	Monochrom Static	Book Publisher	 Harvard University Press
Alphabetica	Random	Monochrom Static	Book Publisher	 Princeton University Press
Abstract	Geometric	Monochrom Static	Book Publisher	 Columbia University Press
Abstract	Geometric	Monochrom Static	Book Publisher	 MIT Press
Alphabetica	Random	Monochrom Static	Book Publisher	 Cornell University Press
Abstract	Geometric	Monochrom Static	Book Publisher	 Penn State University Press
Abstract	Geometric	Polychroma Static	Mass Media	 Grupo Imagen
Abstract	Random	Monochrom Static	Energy	 Dominion Energy

Figurative	Random	Monochrom Static	Sport	 Borregos Tec
Abstract	Random	Monochrom Static	Aquarium	 National Aquarium in Baltimore
Abstract	Geometric	Monochrom Static	Software	 Jetpack
Abstract	Geometric	Monochrom Static	Technology	 Conduent
Abstract	Random	Polychroma Static	Drinks	 Heart of Te
Alphabetica	Random	Monochrom Static	Fashion	 Beehouse
Alphabetica	Geometric	Polychroma Static	Mass Media	 Univision Networks

ANNEX IV – BRIEF

Creative Brief

Museu de Arte Contemporânea

Our main goal is to inspire people through art. To make this museum a safe place where people come to get away from the outside world and indulge themselves in art.

We are trying to attract people from all backgrounds, not just artists. We are trying to prove that art is indeed for everyone and going to the museum doesn't need to be boring.

Audience:

The brand aims to attract young people, that are interested in art or are just curious about and want to know more.

Gender: Female and Male

Age: 16-45+

Competitors:

maat

TATE

MNAC

Museu Coleção Berardo

MAD

MoMA

MAD

MUSEUM OF LONDON

MAD

Our slogan:

only to inspire

Goals for the visual identity:

A strong graphic presence that arouse interest so people that don't usually go to museums feel curious about visiting ours.

Words that describe us:

BOLD

CREATIVE

UNIQUE

SIMPLE

FUN

MODERN