Introduction

Quality as well as beauty is intrinsic to the manifest and/or latent wishes of the purchasers or users of goods and services, related to new technologies. From democratization, to access, to interactive systems, since the last decade of the 20th century.

Historically, quality is a notion that bi-directionally interrelates with beauty. When there is beauty there is quality, and vice versa. In other words, quality is a kind of psychic imprint, which activates various sensory channels in the human being, consciously or unconsciously, in its presence or absence, for centuries. In its presence it goes unnoticed as a natural feeling of pleasure, acceptance and serenity, but

Figure 1. Photography of the 20th century, in black and white, take inside photographic studios. Black and white photography has always had an added value of visual impact, veracity and simplicity to powerfully attract attention in the written press. The composition is very important, since the lines, the textures, the light contrasts jump to the light and become more evident

Figure 2. Photographs of the 20th century, in black and white are silent witnesses of the ways, uses and customs of the population through time. Today, many photography professionals are returning to it to make their works and express harmony, tranquility, purity, etc. For example, high contrast enhances visual strength, especially if they have the full tonal range, from white through all grays to absolute black

Figure 3. La Gioconda –Leonardo Da Vinci, which is located in the Louvre Museum (Paris, France)

Figure 4. The gold mask of Pharaoh Tutankhamun in the Egyptian Museum (Cairo, Egypt)


in the absence, it can cause anxiety, disorientation and rebellion. Beauty and quality are related to what is well or is good. And what is good is longed for in our daily life and in the context that surrounds us.

Over time, beauty has manifested itself through art. Black and white photographs, a painting, a sculpture, an architectural work, etc. are objects where beauty and therefore quality are present. Architects, painters, sculptors and poets for centuries have been in charge of transmitting the notion of beauty, to this day. Some examples in the following figures:

Some of these works have reached an incalculable level from the economic point of view for their aesthetic value. Aesthetics, beauty and quality make up a two-way interrelated triad, which can be found in the current interfaces of interactive systems, aimed at health, education, hobbies, among others. It is a triad that depends on the historical period, the culture and the public or user, if we refer to an interactive system, for example. Therefore, it is feasible to establish isotopic lines of the triad from a synchronous and diachronic perspective.

From a synchronous perspective, that is, in the current temporal space, what is beautiful within painting may not be beautiful within literature, for example. This denotes the independence of the arts. Furthermore, from a diachronic perspective, already in ancient Greece, beauty was associated with measurement. In classical Greece the Greek term "kalón" which can be translated as beautiful, in literary texts it could be read that: Kalón is what is pleasant, generates admiration and attracts attention. With Plato two origins of the notion of beauty originate that would develop through time: beauty as harmony

Figure 5. Art Nouveau: Palau de la Música (Barcelona, Spain)
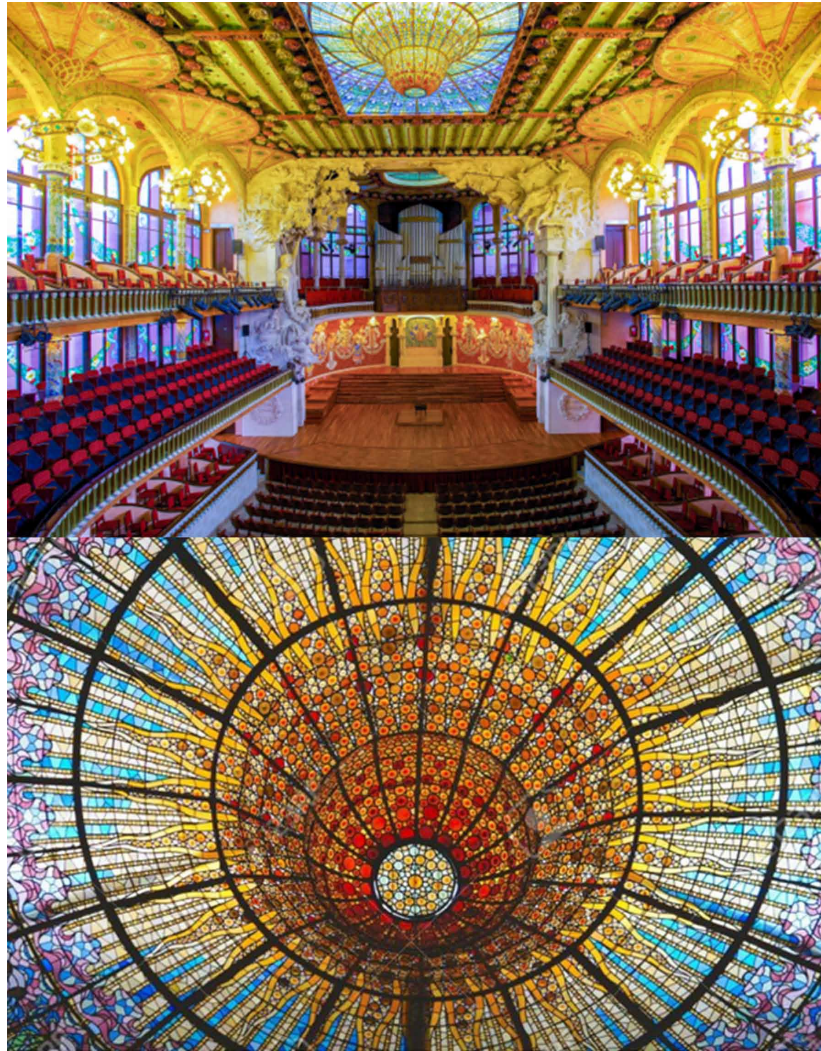
and proportion of the parts (derived from Pythagoras) and beauty as splendor. He maintained that beauty has an autonomous existence, irrespective of the support that contains it (Cooper 1997).

In this Greek and western context, beauty maintains a distance between the object and the observer. That is, the visual and auditory senses prevail with reference to touch, taste and smell. These last three, historically, were located more in the oriental culture than in the western one. Audiovisual communication channels represented 80% for the capture of messages between human beings at the beginning of the emergence of the Internet. Maintaining the attention of users in audiovisual communication will depend not only on the aesthetic triad, beauty and quality, but also on other components related to the quality of the content of the messages, such as creative innovation.

In today's western culture, belief in genius continues to be held as the origin of creative innovation in the sciences (formal and factual) or in the arts. A genius with exceptional intellectual processes, together with an extraordinary personality, favors the creative and original imagination (i.e., figure 6). In

other words, an innovative and original genius is able to make sense from somethings in which other people see nothing.

However, the old popular saying: "There is nothing new under the Sun" may refer to the behaviorism of John Watson (Buckley, 1998). He maintained that nothing a person can do will be authentically creative. There are two reasons for his claims: The new situation could resemble an old, already known situation. Now the new situation was not related to any known situation and is the result of a random or fortuitous combination. This dichotomous situation of behaviorism has its anthropological parallelism with the notions of discovery and invention (Herskovits, 1948), for example. The first is something that already exists but nobody knew it and its knowledge is produced through search. While the second is something that does not exist and its knowledge is generated from experiments.

In both cases there is a common denominator that is the constant and persevering work of the human being. The dysfunction of that work leads to plagiarism and negative behaviors, in the workplace: mobbing, bullyng, stalking, pseudo feminism, etc. These patterns of behaviour can be included within the set of human and social factors in software engineering. Behaviors that in the 21st century are promoted through the social networks and eternal international legal immunity. The aim is to marginalize and destroy creative innovation in its main pillars of avant-garde societies, and from the human perspective, such as education and health.

With the passing of time, the societies and the parameters derived from it to determine genius are dynamic. Genius is a characteristic that society grants the scientist, expert, artist, etc., for the result of their works. Consequently, in the history of creative innovators, it is easy to detect how many of those who achieved the status of geniuses have been forgotten by posterity. As a rule, this happens when it is discovered that their unpublished works, innovative personal actions, etc., are the result of "copying and pasting" (Cipolla-Ficarra, 2010), exaggerated narcissism (Hirigoyen, 2019), or the illegal appropriation of third-party professional career (Cipolla-Ficarra, 2010),, among others. This new phenomenon can be called "dynamics persuaders" (Cipolla-Ficarra, 2010), or "pseudo genius." (Kemper, 2005).

Now, between these two positions, between genius and those presented by behaviorism, it is necessary to establish a third alternative, where the experience and studies of the social sciences intervene, especially in the framework of communication, social psychology, sociology and cultural systems. This third way is also necessary to evaluate the reliability of an endless number of advanced courses, master's degrees, doctoral students, post doctorates, etc., in the "Mercantilist training industry", related to: innovation and design management; audiovisual innovation and interactive environments; creative programming; technologies such as creative and narrative tools, to name a few examples (Cipolla-Ficarra, 2018). That is to say, a miscellany of words, that although they have a great impact for global marketing, they entail little or no scientific seriousness, innovative training and impactful individual experience, specifically, when it comes to joining the workforce.

The education and training industry in creative thinking was developed in the mid-20th century and aside from scientific psychology. Back then, there were few specialists interested in creative problem solving concerning the workplace. They were not in a position to help corporate managers, who were eager to increase creative thinking skills in their employees. The exception was psychologists interested in tests to measure human creativity, highlighting the figure of Joy Paul Guilford (Guilford, 1986). He presented his own theory, through a set of hypotheses, with regard to the capacities, competences and fundamental knowledge in creative thinking. From that set of ideas, he would develop a series of tests, based on the principle that a creative thinker produces new ideas, which are called original ideas. This

Figure 6. Mafalda, a comic strip character created by Joaquín Lavado (Quino –www.quino.com.ar)

consideration led him to postulate that in the creative invention are the notions of convergent and divergent thinking, as well as the ability to evaluate information and draw conclusions.

Guilford's work was essential for the theoretical formulation of creativity education and training courses within the industrial field and which are currently still in force in European schools, institutes, academies, universities, etc. although using an unprecedented multitude of synonyms and neologisms related to ICTs. In parallel, there was an interest within the social sciences, especially in social psychology. These first investigations were very important because their conclusions coincided at the same time with the entry of technology into institutions. Municipalities, tax agencies, large financial and banking groups, state universities and libraries, mass public transport industries (cars, railways, aviation, etc.), are some of the public and private institutions, where large computers are installed, which they operated with vacuum valves. Until the appearance of the integrated circuit (microchip) that allowed the minicomputers and PC's to be manufactured and interconnected.

The users of these devices were experts in systems and/or computing. Moreover, in that historical period, there was already a presence of female staff in the calculation centers, with roles that ranged from computer system operators to system programming and analysis. They were highly appreciated for their quality and precision in their job functions. The staff did not interact directly with the computer, but did so through its input and output peripherals, such as punched paper cards readers and ribbons, printed listings, etc. That is, data that was processed in batches, in order to obtain information. Information that, through system feedback, could be converted back into data for a new process. Processing that computers carried out for hours and hours. ALGOL (Algorithmic Language), BASIC (Beginners' All-purpose

Figure 7. 20th century creativity can mark historic milestones in social media applications. An example is Steve Barron's –www.steve-barron.com, animated video clip "Take On Me", made for the Norwegian musical group "a-ha." A work done in 1985 and that has been resmatered. On YouTube it has exceeded one billion views in February 2020 (uploaded to the network, 06.01.2010). All this denotes that moving images, with a high imagination and originality, through the intersection of comic, music and video, achieve an innovative effect on the viewer, by mixing the real (video characters) and the virtual (2D animation of the comic, which in some frames manages to emulate 3D).

Symbolic Instruction Code), COBOL (COmmon Business-Oriented Language), FORTRAN (FORmula TRANslation), are some of the languages used by computer manufacturers and programmers at the time: IBM, Digital Equipment, Hewlett Packard, among others.

Programming tasks involved a high level of creativity to get the most out of the hardware and software people were using, due to memory limitations, the need to make as few errors as possible in data entry tasks when feeding the computer, the impossibility of repeating the prints in a listed format, given the high volumes of printed paper, etc. At this time, creative innovation is non-existent when resorting to commercial software or open software. This loss of skills of the users of interactive devices in the third millennium, such as compression, memory, arithmetic calculation, reading, writing, etc., derives from a canned and mercantile education that uses the best style of graphic design and packaging technologies to attract its students, or rather, consumers or clients.

Faced with the loss of innate or acquired abilities of the human being, it is necessary to look towards the origins of computing, revaluing the original functions of education in software and hardware (Cipolla-Ficarra, 2018). Those functions can be improved or enhanced. However, they should not lose the human being and the good of the local and global community as the central axis of all the processes of interactive

communication, whether they are processes of an evolutionary or revolutionary nature. Regardless of certain geographical and temporal contexts, communicability must seek excellence in beauty, creativity, innovation, simplicity and universality. In figure 7, we have an excellent example from an audio-visual bridge between 1985 (videoclip) and 2020 (social networking).

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