

CRITICAL THINKING AND THE USE OF ARTIFICIAL INTELLIGENCE (AI)

PENSAMENTO CRÍTICO E O USO DA INTELIGÊNCIA ARTIFICIAL (IA)

PENSAMIENTO CRÍTICO Y EMPLEO DE INTELIGENCIA ARTIFICIAL (IA)



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ABSTRACT

In the first quarter of the 21st century, technological advances — digitalization and artificial intelligence — have profoundly transformed social, educational, and cultural dynamics; however, this progress has coincided with a phenomenon of weakening critical thinking, characterized by the primacy of immediacy, subjectivity, and information overload; this article analyzes the historical evolution of critical thinking from its origins in classical philosophy to its role in modernity, highlighting its function as a fundamental tool for rational decision-making, ethics, and democratic life; it also examines the impact of digital culture, the Google effect, and cognitive externalization on the decline of reflective capacities; from the field of graphic design education, it is argued that the uncritical incorporation of digital technologies and artificial intelligence has displaced humanistic and methodological approaches, privileging immediate production and formal perfection over analysis, meaning, and the social context of images; finally, the study proposes the need to reconfigure educational models in graphic design through a theoretical, critical, and reflective perspective that enables the integration of artificial intelligence without abandoning the development of critical thinking and the construction of meaning in contemporary visual culture.

Keywords: Critical Thinking. Education. Graphic Design. Artificial Intelligence.

RESUMO

No primeiro quarto do século XXI, os avanços tecnológicos — a digitalização e a inteligência artificial — transformaram profundamente as dinâmicas sociais, educacionais e culturais; entretanto, esse progresso tem coincidido com um fenômeno de enfraquecimento do pensamento crítico, caracterizado pela primazia da imediatividade, da subjetividade e da sobrecarga informacional; este artigo analisa a evolução histórica do pensamento crítico desde suas origens na filosofia clássica até seu papel na modernidade, destacando sua função como ferramenta fundamental para a tomada de decisões racionais, a ética e a vida democrática; aborda-se também o impacto da cultura digital, o efeito Google e a externalização cognitiva na redução das capacidades reflexivas; no âmbito do ensino do design gráfico, argumenta-se que a incorporação acrítica das tecnologias digitais e da inteligência artificial tem deslocado abordagens humanistas e metodológicas, privilegiando

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a produção imediata e a perfeição formal em detrimento da análise, do significado e do contexto social da imagem; por fim, propõe-se a necessidade de reconfigurar os modelos educacionais do design gráfico por meio de uma postura teórica, crítica e reflexiva que permita integrar a inteligência artificial sem renunciar ao desenvolvimento do pensamento crítico e à construção de sentido na cultura visual contemporânea.

Palavras-chave: Pensamento Crítico. Ensino. Design Gráfico. Inteligência Artificial.

RESUMEN

En el primer cuarto del siglo XXI, los avances tecnológicos —la digitalización y la inteligencia artificial— han transformado profundamente las dinámicas sociales, educativas y culturales. Sin embargo, este progreso ha coincidido con un fenómeno de debilitamiento del pensamiento crítico, caracterizado por la primacía de la inmediatez, la subjetividad y la sobrecarga informativa. Este artículo analiza la evolución histórica del pensamiento crítico desde sus orígenes en la filosofía clásica hasta su papel en la modernidad, destacando su función como herramienta fundamental para la toma de decisiones racionales, la ética y la vida democrática. Asimismo, se aborda el análisis el impacto de la cultura digital, el efecto Google y la externalización cognitiva en la disminución de las capacidades reflexivas. Desde el ámbito de la enseñanza del diseño gráfico, se ha argumentado que la incorporación acrítica de tecnologías digitales y de inteligencia artificial ha desplazado los enfoques humanistas y metodológicos, privilegiando la producción inmediata y la perfección formal por encima del análisis, el significado y el contexto social de la imagen. Finalmente, se propone la necesidad de reconfigurar los modelos educativos del diseño gráfico mediante una postura teórica, crítica y reflexiva que permita integrar la inteligencia artificial sin renunciar al desarrollo del pensamiento crítico y a la construcción de sentido en la cultura visual contemporánea.

Palabras clave: Pensamiento Crítico. Enseñanza. Diseño Gráfico. Inteligencia Artificial.



1 INTRODUCTION

In the first quarter of the 21st century, significant technological advances took place, such as human genome sequencing, lithium batteries, renewable energies, the internet and global connectivity, telephone devices, social networks and artificial intelligence, among many others. All of them have transformed the way we work and live. However, it seems that stupidity is taking over society by leaps and bounds and that critical thinking is being undermined. In an era where individualization prevails, we have headed for what Lipovetsky (2024, p. 9) called the fracture of disciplinary socialization.

... it is a historical change of course in the objectives and modalities of socialization, currently under the aegis of open and plural devices; in other words, hedonistic and personalized individualism has become legitimate and no longer meets with opposition; [...] The era of revolution, of scandal, of futuristic hope, inseparable from modernism, is over.

Human beings fervently yearn to live in the immediacy, in the here and now. We are living in a historical stage in which opinion, emotion and ease are prioritised, exacerbated and valued more than evidence. Thanks to the global cybernetic network, which seduces us and complements us with its thousand tentacles of powerful algorithms, a wonderful effect is produced: in a second, we are already political analysts, technical directors of some sports team and even "cell phone intellectuals", that is, this type of fragmentary and immediate culture is projected at all levels: the neighborhood, the office, and minority groups. In this context, we can all have an opinion about anything according to our "intimate" experience. In this same sense, it is Lipovetsky himself (2004, p. 14) who argues: the greater the means of expression, the fewer things one has to say, the more subjectivity is requested, the more anonymous and empty the effect is.

Therefore, a question arises: what happened to critical thinking, the backbone of intellectuality? Why does deep reflective thinking seem to be exhausted so quickly? To answer these questions, we must first review the origin of critical thinking in human history and understand what it means to think critically. It is necessary to clarify that thinking a lot of nonsense about a topic or situation is not thinking correctly.

2 A BRIEF HISTORICAL OVERVIEW OF CRITICAL THINKING

Thinking for a long time about a topic chaotically or obsessively is not thinking critically, on many occasions you just waste time as if you were in a tunnel with no way out. On many occasions, this type of analysis without a methodology can result in an absolute waste of time, as if you were immersed in a tunnel with no exit. Critical thinking, far from being a mere

intellectual exercise, constitutes a deeper and more refined process that involves meticulous reflection and analysis. This comprehensive methodology involves questioning, investigating, fragmenting, classifying, prioritizing, and demanding a reasonable amount of evidence before accepting any belief or opinion.

Critical thinking according to Peter A. Facione (1990) who is one of the most cited contemporary references in education, philosophy and social sciences, in the Delphy report of the American Philosophical Association. He defines critical thinking as follows:

A deliberate and self-regulated judgment that gives rise to interpretation, analysis, evaluation and inference, as well as the explanation of the evidential, conceptual, methodological or contextual considerations on which said judgment is based.

According to Facione, critical thinking does not seek to win arguments, but rather: to make better decisions, formulate well-founded judgments, and act rationally and ethically in complex contexts. It is an essential tool for democratic life, science, education and responsible citizenship.

In ancient Greece, a specific methodology for structuring thought was initiated approximately 2500 years ago. The method of research through dialogue, developed by the Greek philosopher Socrates and later called the "Socratic method", constitutes a legacy of great relevance in the field of philosophical research. This methodological approach involves asking questions that can be perceived as disturbing, with the purpose of identifying inconsistencies between the arguments presented, thus demonstrating the dubious nature and lack of solidity of what had initially been considered as a solid and forceful argument.

In the field of philosophy and ethics, the expression "I only know that I know nothing", attributed to Socrates, stands as a paradigm of acceptance of ignorance as the foundation of critical thinking. However, in 399 B.C. In 400 BC, the Greek philosopher was accused, tried and sentenced to death for alleged corruption of youth and lack of devotion to the gods. In reality, Socrates' transgression was to raise the questioning of everything and promote this way of acting on the part of his disciples, with the aim of stimulating reflection and knowledge, and in this way, disrupting the beliefs, privileges and comforts of Athenian high society.

Despite his death, Socrates' thought persisted through his students, such as Plato and later Aristotle, who contributed to the consolidation of scientific methodology. These philosophers established doubt as a means of reflection, as well as the logic of systematic research. In this sense, analysis was implemented, understood as the fragmentation of information into individual components to facilitate its understanding. Likewise, weighting,

which implies the evaluation of the veracity and relevance of the information, was incorporated. Inference is presented as the ability to draw logical conclusions from evidence, while problem-solving refers to the ability to find appropriate solutions to challenges or problems posed.

Around the thirteenth century, St. Thomas Aquinas integrated Aristotelian philosophy with Christian theology, at a time when reason and faith were conceived as opposites. The method of St. Thomas in his professorships at the University of Paris was based on the integration of human reason with Christian values. In his pedagogical approach, he implemented the *Quaestio disputata* (disputed question), a dialectical method that involved the formulation of questions and the presentation of arguments both for and against, culminating in the obtaining of a resolution based on reason and faith. This method, in addition to encouraging critical thinking, made it possible to integrate reason and faith in a harmonious synthesis.

Several centuries passed before Socrates' thought was taken up again. It was during the Enlightenment period that philosophers such as Kant tried to break with the ignorance that prevailed at the time, through their motto *Sapere Aude* (dare to think for yourself). As various authors (Voltaire, Diderot and Locke, among others) have pointed out, critical thinking has been a current of thought that has promoted reason in human development. In this way, it has become one of the pillars of democracy, innovation and science.

People who possessed the capacity for critical thinking, that is, the ability to examine arguments, evaluate evidence, and question false narratives, were considered to be individuals with an exceptionally developed and educated mind. However, these exaltations were not accepted by everyone, as evidenced by the reflections of Nietzsche, who maintained that reason was overvalued and that the culprit of this situation was Socrates. His argument was that too many questions would exhaust the meaning of life.

Finally, it seems that the vast majority of people do not know where they are going, and the question is how did it get to this moment?, it is in this same sense that Enrique Rojas (2010, p. 17) argues

From the most egregious man to the most degraded there is an enormous distance, but both belong to the human species. Only one of them has known how to lead his life making the most of the positive; there we have some examples from the history of humanity: from Socrates, Plato, Aristotle, Plotinus, Saint Augustine, Saint Anselm, Saint Thomas Aquinas or the master Eckhart, through Kepler, Galileo, Newton, Descartes, Pascal, Kant or Hegel to existentialists such as Sartre, Camus, Kierkegaard, Nietzsche, our Unamuno, or the

great thinkers of our time, such as Brentano, Husserl, Heidegger, Max Scheler y Ortega y Gasset.

In opposition to the aforementioned position, there is a significant predominance of individuals who exhibit a modest, fragmentary way of thinking that lacks a coherent sense. However, throughout the history of humanity, there has been a social amalgam in which two divergent trends converge: on the one hand, great thinkers and, on the other, individuals who lack a systematic structuring in their thoughts, relying predominantly on intuition, belief and adherence to neighborhood, cultural or political groups that represent their ideas.

Without leaving aside the existence of detractors and mental setbacks, critical thinking has endured to the present day. However, in many respects, it could seem that the opposite direction is being taken. Today, the availability of answers to any question is immediate and accessible with a simple click. Access to knowledge through cell phones and computers has significantly facilitated this process. However, there is a noticeable decline in critical thinking, despite the abundance of information available online.

The human capacity to process such an extensive amount of data is limited due to the physical structure of the brain, which means that it is difficult to analyze such a large volume of information. The volume of data, images, and recordings that are generated far exceeds the processing capacity, resulting in information overload or infoxication. This phenomenon, recognized in the field of psychology, implies that individuals must resort to cognitive strategies to manage the abundance of stimuli received.

Within the framework of the cybernetic phenomenon called the "Google effect", which is characterized by the widespread use of search engines such as Google or artificial intelligence (AI) systems, there is evidence of an easing of access to information. However, this implies an outsourcing³ of thinking, which leads to a decrease in the development of critical reasoning. The lack of cognitive exercise affects the functional capacity of the brain, which manifests itself in a decrease in memory and in the tendency to not verify the answers to queries made on electronic platforms. In addition, there is a tendency to spread false information⁴ without verification, which can contain erroneous data and has serious consequences.

The methodology developed by Socrates, consisting of finding out and not staying with the first answer, has undergone a remarkable transformation, becoming a process of rapid

³ In other words, outsourcing is a practice carried out by an individual who hires a firm to provide a service that, in principle, should be provided by itself. In the case of a knowledge problem, we are making use of search engines and artificial intelligence to arrive at thought answers without trying to make the effort to do it ourselves.

⁴ To expand on this topic, it is recommended to access Fake News, communication and design: transcendence, impact and social responsibility by Marco Antonio Marín Álvarez, Et. al. A year of designing MM1. <https://mm1revista.azc.uam.mx/index.php/mm1/article/view/A-5%20N-25>

exploration in Google, Chat GPT or other artificial intelligence (AI) tools. In this sense, knowledge seems to be within everyone's reach, however, there has been a loss of the process of reflection, memorization and comprehension, which progressively deteriorate due to the excess of information and the speed with which we live today. Consequently, there is a tendency to prefer striking and instantaneous notes, rather than critical reflection.

3 CRITICAL THINKING AND TEACHING GRAPHIC DESIGN

Graphic design has undergone significant transformations in the last four decades. There has been a shift from analog design, based on photomechanical images, to digital design, characterized by immaterial and hybrid constructions generated by computers. In addition, artificial intelligence (AI) has been integrated into creative processes, through the use of algorithms and empirical methods. As a result, visual culture has undergone a radical transformation, although it has largely not been approached from an academic perspective.

The widespread implementation of artificial intelligence (AI) for image generation has permeated a culture characterized by a proliferation of combinations that anticipate future trends. This phenomenon, manifested through a visionary approach, is aligned with the ideas expressed by the French philosopher Jean Francois Lyotard (1987), who identified a series of postmodern trends, including extreme relativism, digital influence on society, the exhaustion of great utopian promises in its narratives and cultural despair, manifested in extreme skepticism, that reflects an increasingly decentralized world.

We are living in a visual culture where the theory of knowledge and cognitive skills have fragmented. It would seem, then, that a new discourse on the visual has emerged, which avoids reflection and proposes solutions to social reality. The development of cognitive skills and the use of the so-called new technologies are closely combined in all fields of knowledge at different school levels, digital tools make up the pedagogical strategies in the academic development of our time.

However, in the process of learning and evaluating design, the model of the perfect canon of the designed object has traditionally been idealized. In this environment, it is usually observed that students and a considerable number of teachers automatically focus on identifying and highlighting errors, which becomes a simplistic and sterile critical attitude, dismissing constructive criticism about the design process involved, its level of difficulty, the complexity of the presentation and accidental errors in billing. In addition to this, the teachers omit the post-design process, "the redesign", at which time the aforementioned problems can be implemented and resolved. This situation limits the enrichment of the chair and the development of an environment of reflection and continuous improvement.

However, when it comes to professional design education, many root causes have been omitted. At present, the focus on the formation of the most cultured and humanistic student has been abandoned. It is possible to find outstanding professionals in various areas of specialization, capable of effectively solving almost any problem that comes their way. However, when leaving that context, the professional faces a significant challenge when applying their knowledge in contexts outside their area of specialization, Françoise Revel in Enrique Rojas warns ... Never has the information been so abundant and prolix and never, however, has there been so much ignorance. Man is less and less wise, in the classic sense of the term, glimpsing the fear of the possible dissipation of cognitive abilities, the ability to respond to social skills in addition to the political and commercial commitments required in our time (2010, p.18).

In the face of evident technological and cultural change, it has not been considered in the teaching-learning discourses of design that AIs are intertwined in issues of material and social realities. Although AI is a fascinating, fast and economical tool, it cannot be limited to abstract potential, since technologies are not the result of isolated processes, as Williams argues in Lister (2017, p.20) ... they are calculated, desired and induced.

Despite the possible objections to artificial intelligence (AI), it must be recognized that it is a remarkably inclusive tool, insofar as it facilitates the application of knowledge from disciplines such as hermeneutics, semiotics, and rhetoric, among many others. However, the disruption that is brewing through a single click is evident.

AI is associated with a totally new visual discourse, which must transform ideas around situations, judgments and truth. The rapid development of AI is the new reconfiguration of the modes of image creation and of those who observe such images, and yet the questions are: are we preparing our young university students in a new reality, not only technological but also discursive?

In this sense, William Mitchel (1992, p. 225) argues.

Today, as we enter the era [of AI], we must face more the uneradicable fragility of our ontological distinctions between the imaginary and the real, and the tragic chimera of the Cartesian dream.

Finally, from the perspective of design education, there is a need to adopt a much more theoretical, critical and reflective attitude towards the reality of the world in relation to the universe of images, their nature and their properties.

4 CONCLUSIONS

We are living in a cultural moment, high in "feelings" and "emotions" and the individual liberation of the self in terms of values, sexuality, education, among many other things, which entails a light valuation of the "others", tolerating a permissiveness without giving due importance to others.

As for the teaching of graphic design, the transformation of analog, through digital hybridization, until reaching AI's, which have completely left critical thinking aside, there are rarely questions, reflections and proposals in a design, now it is AI that proposes and resolves. The process of visual representation has lost much of its content, abandoning the real, what was previously constituted in a humanistic environment has been transferred to a cold environment, made by computers, the perfection of the design object is more important than the meaning of the representation itself.

Now students in graphic design have a weak thought, without firmness, or as Enrique Rojas (2010, p.16) puts it: "... asepsis in its commitments, *sui generis* indifference made of curiosity and relativism at the same time; its ideology is pragmatism, its norm is conduct, its social validity, what is worn, what is fashionable; its ethics is based on statistics, a substitute for conscience; its morality, full of neutrality, lack of commitment and subjectivity, it is relegated to intimacy."

Perhaps the greatest predominant faculty concern in the teaching of contemporary graphic design is to observe the gradual disappearance of the student's cognitive abilities for design, who changes their design methodology and thinking and opts for the easy and comfortable promise that the computer, state-of-the-art software, and Artificial Intelligence in a virtuous trine are the solving agents of design problems and of the inherent future dilemmas that will arise in the exercise of the profession.

However, the supposed creation that occurs through Artificial Intelligence cannot only glorify its privileged status for its abstract potential. In a more precise debate, the discourse about a change of era is fundamental. To understand the transformations that new technology has entailed, it is necessary to analyze, question and argue the ways of creating the image, above all, what is being left behind and the level of rupture that these changes entail. Because what AI offers, well founded, is inevitably achieved with knowledge of language and the theoretical and visual discourses of the image itself. In other words, the image cannot be fully understood without taking into account the systems of ideas and the way of processing critical thinking, in addition to experience.

Finally, the most revealing thing is not the images created with AI, but the new reordering of the visual, of what we can do with them and of their meaning, to the extent that we are able to resist the comforts of chance.

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