ARTIFICIAL INTELLIGENCE AND EDUCATION IN LIQUID MODERNITY: BETWEEN CHARMS AND RISKS

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ABSTRACT

This reflection comprises the impact of Artificial Intelligence on Liquid Modernity and Education. We live in an era marked by intense dependence on technological resources, essential for work, studies and various activities that both sustain and threaten human life. The central dilemma lies in the relationship between the human being – the only one endowed with rational intelligence, with natural potential and cultural improvement – and the machine, equipped with Artificial Intelligence. Created by human reason, Artificial Intelligence proposes, to a certain extent, to replicate and even replace people's intellectual capacity, raising ethical and existential questions about the limits and possibilities of this interaction. This reflection critically rehearses perspectives and questions based on bibliographic studies and the messages presented in a wide range of films. In Alan Mathison Turing's conception, in Artificial Intelligence, for thousands of years humanity has sought to understand how the phenomenon of thinking and knowing occurs. This perspective seems to have activated the "field of Artificial Intelligence" to go further and "not only understand, but also build intelligent entities". Turing's work began shortly after World War II, and in 1956 he coined the term Artificial Intelligence. Understanding Education in the context of technology and the advancement of Artificial Intelligence, in the light of sociologist Zygmunt Bauman, in 44 Letters from the Modern Liquid World, especially in the chapter "Is the world inhospitable to Education?", leads us to reflect on a crisis that humanity is going through. Unlike previous crises, the current one affects several sectors in a deep and accelerated way. As Artificial Intelligence advances, pushing ethical boundaries and challenging the control of rationality, it becomes imperative for humanity to adopt a critical stance. Education, in this scenario, must promote a continuous dialogue with technology, allowing the decisions made to impact all spheres of society. In addition, the advancement of Artificial Intelligence can aggravate social and economic inequalities, directly reflecting on culture and Education.

Keywords: Artificial Intelligence. Liquid Modernity. Bauman. Education.

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INTRODUCTION

This article addresses the theme of Artificial Intelligence (AI) and Education in Liquid Modernity by Zygmunt Bauman, with the aim of better understanding the relationship between these three elements. AI and Education, in particular, play a key role in the development of today's society and are likely to serve as a basis for building a future society. However, it is essential to consider the third element of this triad: Liquid Modernity. We live in a world heavily influenced by the media, social media, and AI, which has profound impacts on the entire society. Inevitably, these reflexes also reach schools and students, shaping their experiences and challenges in the educational process.

Our ancestors faced great difficulties in accessing information, often having to travel long distances to centers of knowledge, investing considerable financial resources in these journeys. Currently, paradoxically, the scenario is one of constant information bombardment, coming from the media and social networks. When we analyze this panorama carefully, it becomes evident that the excess of information can be as harmful as its scarcity. Today, the great challenge is to orchestrate in our minds all the information and know which are true and which are marketing products, which have no relevance and, whenever we receive information, we must research who is informing, what is their knowledge on the subject and if the source is really reliable.

In this line, when we resume the discussion on Education and its relationship with Liquid Modernity and technologies, we resort to the theoretical support of one of Zygmunt Bauman's most relevant works – *44 Letters from the Modern Liquid World*. In the author's opinion, Education has always gone through difficult times, but the current crisis is very different from previous crises, since it is much deeper and more structural. This is clear when he states, in chapter 23, with the subtitle "Is the world inhospitable to Education?", that the "'crisis of education' that is so much discussed in our days is not absolutely new". (Bauman, 2017, p. 112).

In another part of the book, he writes, to complement this theory: "the history of Education has always been full of crucial periods in which it became evident that tried and apparently reliable assumptions and strategies were losing touch with reality and needed to be reviewed or reformulated" (Bauman, 2017, p. 112). In this part, we perceive the author's concern with the changes and restructuring of Education. Bauman reiterates this concern when he states: "it seems, however, that the current crisis is different from the previous ones." (Bauman, 2017, p. 112).

For him, "the challenges of our time impose a hard blow to the very essence of the idea of Education formed at the dawn of the long history of civilization" (Bauman, 2017, p.

112). In other words, for the first time in the history of Education, there is a profound criticism of the entire structure of Education and its foundations, which have served as a basis for generations, as he asserts when he states: "they call into question the 'invariants' of the pedagogical idea: its constitutive characteristics, which resisted unscathed all the crises of the past, its assumptions never before criticized or examined, much less condemned for having followed their course and needing replacement". (Bauman, 2017, p. 112).

THE EMERGENCE OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) is integrated into our daily lives and its origins date back to the post-World War II period. In this context, AI initially emerged as an attempt to decipher the codes of machines and the riddles used by the Nazis. One of the central characters in this endeavor was Alan Mathison Turing, whose contribution was decisive to the victory of the Allied forces.

Another significant aspect of Turing's work is the so-called "Turing test", proposed by him in 1950. This test aims to provide a satisfactory operational definition of intelligence by establishing that a computer is considered intelligent if, when questioned by a human interrogator through written questions, the latter is unable to discern whether the answers come from a human being or a machine. According to the criteria established by this test, the computer must possess the following capabilities: natural language processing, which enables effective communication in a natural language; knowledge representation, which provides the storage of acquired information; automated reasoning, which uses stored information to answer questions and formulate new conclusions; and machine learning, which makes it possible to adapt to new circumstances and detect and extrapolate patterns.

According to the book *Artificial Intelligence*, by Stuart Russell and Peter Norvig, it is possible to conceive eight definitions of Artificial Intelligence, organized along two dimensions (Russell; Norvig, 2013, p. 24). Artificial Intelligences are intrinsically linked to thought and reasoning processes (Russell; Norvig, 2013, p. 24). In this framework, the expressions that refer to "thinking like a human" and "thinking rationally" are related to the domain of reasoning, while the expressions "act like human beings" and "act rationally" refer to behavior.

Additionally, to enrich the expressions, we can consider the act of thinking and acting in a way analogous to human behavior, evaluating success based on the achievement of objectives related to human performance. On the other hand, expressions

such as "thinking rationally" and "acting rationally" measure success by comparing it with an ideal concept of intelligence, called rationality. "Historically, all four strategies for the study of AI have been followed, each by different people with different methods." (Russell; Norvig, 2013, p. 25).

Regarding the beginning of technology, we highlight an excerpt from the work in which the authors state: "the first work now recognized as AI was carried out by Warren McCulloch and Walter Pitts (1943)" (Russell; Norvig, 2013, p. 41). This work is of fundamental importance, because artificial neural networks are part of any robot or autonomous machine today, and if they don't find anything to replace them, they will exist for a long time in the future. In one part of the book, Russell and Norvig explain how they began the study of neural networks. They drew on three sources: knowledge of the basic physiology and function of neurons in the brain; a formal analysis of propositional logic created by Russell and Whitehead; and Turing's theory of computation. These two researchers proposed a model of artificial neurons, in which each neuron is characterized by being "on" or "off" with the switch to "on", occurring in response to stimulation by a sufficient number of neighboring neurons. The state of a neuron was considered "equivalent in concrete terms to a proposition that defined its adequate stimulus." (Russell; Norvig, 2013, p. 41).

Thanks to the ideas of McCulloch and Walter Pitts, later, two Harvard students, Dean Edmonds and Marvin Minsky, built the first neural network computer in 1950. "SNARC, as it was called, used 3,000 electric valves and an autopilot mechanism taken from a B-24 bomber to simulate a network of 40 neurons" (Russell; Norvig, 2013, p. 41), that is, the first equipment began with a very simple and basic technology. In order to understand the topic in question in more depth, it is essential to identify the place that gave rise to the AI research. In this context, we highlight Princeton, which was also home to a notable researcher in the field, John McCarthy. McCarthy later transferred to Stanford University and, further on, to Dartmouth College, which is widely recognized as the birthplace of the study of AI.

John McCarthy joined other researchers such as Minsky, Claude Shannon, and finally Nathaniel, and organized a seminar with the goal of bringing together researchers from all over the United States who were interested in autonomous theory, neural networks, and the study of intelligence.

LIQUID MODERNITY AND EDUCATION

In the analysis of the work *44 Letters from the Modern Liquid World*, by Zygmunt Bauman, we observe a deep reflection on the role of Education in Liquid Modernity. The author expresses his concern with consumerism, highlighting that the logic of disposal permeates contemporary relations. Bauman emphasizes that, nowadays, objects and experiences are often considered obsolete as soon as they lose their momentary usefulness, without the prospect of reuse. This critique of consumerism reveals a concern about the impact of this phenomenon on social and educational dynamics: "our world increasingly resembles the 'invisible city' of Leonia, described by Italo Calvino. More than the things that are manufactured, sold or bought every day, Leonia's opulence is measured by the things that are thrown away every day to make room for new ones." (Bauman, 2017, p. 113).

The predominant consumerism in contemporary society exerts a significant influence on the perception of value in several aspects, including Education. As argued by Bauman (2017, p. 113-114), the notion that education can be seen as a "product" to be acquired and preserved indefinitely is discouraging and, without a doubt, does not contribute to the institutionalization of the school. The author illustrates this issue by mentioning the perspective of the parents of past generations, who used to defend: "what you have learned no one will ever take away from you" (Bauman, 2017, p. 114), highlighting the importance attributed to knowledge as a lasting and inalienable good.

However, what, in past generations, was recognized as a primordial value, today, the new generations no longer care, and most even have a true aversion to everything that is made to last, whatever it is. The author reinforces this idea, giving an example of a very common incentive in past generations by fathers and mothers who saw Education as something necessary and lasting, and can confirm this thought in the following passage: "this promise might seem encouraging to children then, but today's young people would be horrified if their parents still used this type of argument". (Bauman, 2017, p. 114).

Today, the notion that any lasting bond, regardless of its nature, is perceived as attractive by most young people, is questionable. This prism is corroborated by the statement of Bauman (2017, p. 114), who highlights this tendency: "the second challenge to the basic assumptions of Education derives from the erratic and essentially unpredictable nature of contemporary changes, which reinforces the first challenge". Thus, "knowledge has always been valued for its faithful representation of the world; but what if the world transforms in such a way that it continuously challenges the truth of the knowledge that has existed until then and takes even the most well-informed people by

surprise" (Bauman, 2017, p. 114). In this assertion, we find that the author seems to tell us that we are in an environment that does not benefit certainties, but the most adapted to abrupt changes, and these changes do not only affect individuals, but institutions, which have to adapt constantly and quickly.

Metaphorically, it is as if each night we slept for 10 years or more and, when we woke up each morning, everything had changed or transformed, as if by magic, and again we needed to update ourselves on what happened during the period we were absent – it is precisely this impression we have when we try to understand Bauman's liquid world. Therefore, in this equation, Bauman's Liquid Modernity is added, which describes an immediate, consumerist and utilitarian world, with AI technology, which advances by leaps and bounds, making it impossible to instantly keep up with the constant number of changes, resembling Bauman's own liquid world. Finally, we have Education, which according to the author has never suffered a conceptual and structural crisis as it currently happens. All of this is an individual and social consequence that reaches schools and also affects the reality of educators, fathers and mothers or guardians, in some cases, and, consequently, the students.

THE MYTH OF ARTIFICIAL INTELLIGENCE

In an interview with neuroscientist Miguel Nicolelis, he underlines the importance of adopting a critical stance towards technological innovations, especially with regard to AI. Despite the extraordinary promises that this technology offers us, it is essential that we avoid excessive idealization. We must, first, seek information from reputable researchers in the area and relevant content, without becoming dogmatic or, even worse, disseminators of conspiracy or apocalyptic theories. While the technology may seem magical at first glance, it is actually a reflection of human thinking. Therefore, it is imperative that we ask ourselves about the true usefulness of AI, who will really benefit from it, and whether the narratives promoted by the media are, in fact, true.

When addressing the topic of AI, it is pertinent to evoke the Industrial Revolution, since, like contemporary technologies, it generated significant concerns in relation to employment, a phenomenon that is observed today. It is relevant to emphasize that, as occurred in the early days of the Industrial Revolution, when many believed that automation would result in the extinction of jobs and that machines would fully replace the human workforce, the unfolding of time revealed a different reality. Although, in fact, there has been the replacement of part of the workforce by machines and the extinction of certain professions, new job opportunities have also emerged. This dynamic is particularly

interesting when taking into account the implications of AI, which, analogous to the Industrial Revolution, is transforming the landscape of work.

When we analyze contemporary technology, it is possible to realize that it could be seen as a form of magic by previous generations. Likewise, it is plausible that we will have a similar perception regarding the technologies that will emerge in the future. However, not all researchers share the belief that technology is a magical resource capable of solving all problems. An example is neuroscientist Miguel Nicolelis, who, in his article, argues that "artificial intelligence is not, in fact, intelligence, but rather a marketing strategy aimed at exploiting human labor." For Nicolelis, intelligence is the result of millions of years of evolution, a phenomenon that cannot be reduced to mere binary codes. (Teixeira, 2023).

In Nicolelis' conception, "ChatGPT works as a marketing tool by generating inequality in the relationship between employer and workforce" (Teixeira, 2023). But who is this researcher? What is your authority on this subject? Well, Miguel Nicolelis headed the Center for Neuroengineering at Duke University, retired as professor emeritus in 2021. He was a doctor, being a reference studying the brain and machine; coordinated the Scientific Committee of the Northeast Consortium. He was also the first Brazilian to publish a cover article in the scientific journal Science. For three decades, the neuroscientist dedicated himself to the investigation of neural networks. Recognized for his expertise in brain-machine interfaces, he played a key role in the evolution of neuroprostheses, which have the ability to restore body movements. A notable moment occurred during the opening ceremony of the 2014 World Cup, in the city of São Paulo, when an individual in a wheelchair, with the help of a device developed by him, executed a precise shot towards the goal.

Miguel Nicolelis told Folha that it is absurd to say that language models such as ChatGPT are ten times smarter than a human being because they write quickly or communicate in several languages, as did Geoffrey Hinton, a computer scientist who invented neural networks and was a partner and advisor to Google for more than a decade (Teixeira, 2023). For him, "the turtle is extremely intelligent, it is just slow". In the article, Miguel Nicolelis also criticized Yuval Harari, who is an Israeli professor of history and author of the *international* bestseller *Sapiens: A Brief History of Humanity*, *Homo Deus: A Brief History of Tomorrow* and *21 Lessons for the 21st Century*. His latest release is *Notes on the Pandemic: And Brief Lessons for the Post-Coronavirus World*. In his bestseller *Sapiens*, author Yuval Noah Harari merges concepts from different areas of knowledge without having a deep understanding of them. In an interview with Folha UOL, neuroscientist Miguel Nicolelis criticizes this approach, stating that Harari mixes references

and interprets the results of his research in a way that does not correspond, in any way, to what was actually accomplished.

Miguel Nicolelis expressed his opinion that Yuval Harari may have exaggerated and distanced himself from reality in his work, claiming that, in the future, we may be able to implement brain-brain interfaces, such as the ones he has developed over his 30 years of research with rats, monkeys and humans, to aid in rehabilitation. In the interview given to Folha UOL, Nicolelis clarified: "it's not about exchanging my feelings with other people." He emphasized that, in fact, this exchange refers to motor commands, with the aim of minimizing digital logic. Additionally, Nicolelis criticized Harari's interpretation, pointing out that he erroneously suggests that his research implies the possibility of reading the mind, which, according to Nicolelis, will never materialize (Teixeira, 2023).

While Harari maintains that human longevity could extend up to 200 years and that we will eventually be able to eliminate the aging process, Nicolelis expresses skepticism about these claims, considering them as mere fantasies. Miguel Nicolelis disputes Harari about AI having taken control of the system. The AI did not carry out a hijacking; On the contrary, it is the human species itself that is restricting its evolution, that is, behind each technology there are political, social and economic interests controlled by a group and driven by interests that are not always clear or understood at first and only when we delve deeper into the knowledge of the information that reaches us will we be able to discover the true purpose of the technology that is offered to the population. Therefore, we need to be open to news without being dogmatic to the point of saying that everything that is in the media is true and that it works exactly as advertised.

In this vein, it is imperative that we seek the knowledge of the competent authorities in matters of our interest, as well as that we cultivate safe and reliable sources of information, in order to avoid manipulation and uncritical acceptance of information conveyed by the media. The formation of an informed individual, who understands the dynamics of an ever-changing reality, is of fundamental importance.

Miguel Nicolelis, quoting Noam Chomsky, points out that AI lacks true intelligence and is not genuinely artificial. This technology is actually a product of human creation, which makes it inherently natural. Furthermore, intelligence is a characteristic of organisms that interact with their environment and with other organisms, resulting from the Darwinian process of natural selection. While algorithms can perform tasks, these actions do not occur autonomously. Nicolelis uses a blunt expression: "if he were alive, Charles Darwin would have a heart attack with this" (Teixeira, 2023).

Regarding machine learning, Miguel Nicolelis is categorical when he asserts that "machine learning, *deep learning*, *machine learning*, are big names that use words that we usually colloquially use, related to the human brain or any animal brain to define things we do with binary logic" (Teixeira, 2023). And, to complement, he informs: "human intelligence is not binary. Therefore, it is a misnomer" (Teixeira, 2023). Nicolelis also disputes Geoffrey Hilton's ideas that AI is already far superior to human intelligence, considering it absurd. Geoffrey Hilton is an Anglo-Canadian cognitive psychologist and computer scientist, known for his work on artificial neural networks. Since 2013, he has divided his time working for Google and the University of Toronto.

Miguel Nicolelis argues that the interests of the market and the development of AI are different aspects. For him, the market seeks agility and efficiency, prioritizing infinite profits and minimal costs. On the other hand, intelligence, especially that of the organism, has as its primary objective to maximize survival in an ever-changing environment. Nicolelis argues that while a computer can play chess faster and predict more moves than a world champion, that doesn't mean it's smarter; In fact, it may be that the computer is just better trained. He shows that the efficiency of the computer is due to the fact that chess has well-defined rules; If it were a game with dynamic and unpredictable situations, the situation would be different. Thus, according to Nicolelis, the computer is not prepared to adapt to all possible environments, as it lacks the ability to generalize its intelligence.

When questioned, in the interview, about the statement of the researcher at the Open Philanthropy institute, Ajeya Cotra, who estimated that, in the current model of society, the human mind could become obsolete by 2037 in terms of production for the labor market, Miguel Nicolelis points out that there is a limit to digital logic. He goes on to focus on the uniqueness of human intelligence in relation to the capabilities of AI:

> I just read a book by one of the best intellectuals in the field of AI, Michel Wooldridge from the University of Oxford and in the book the author states "we know that there is a limit determined by non-computable phenomena, in which there is no algorithm, there is no mathematical formula solvable with a program". But he puts two paragraphs on the most important thing in the book, and comments that researchers don't pay much attention to it because they have a lot to do (Teixeira, 2023).

The human mind is full of non-computable phenomena: intelligence, intuition, creativity, aesthetic sense, definitions of beauty, of creativity, all of this is non-computable. What is the formula for beauty? (Teixeira, 2023). Do machines have all the answers to a complex context such as that of humans? The more we delve into the knowledge of technology, the more we are sure that the most interesting machine is ourselves.

When Miguel Nicolelis was asked about a young man who posted on Twitter that his uncle had been accused of plagiarism due to a professor having used an excerpt from his work and asked if he had used ChatGPT, Nicolelis replied:

> In a way, ChatGPT is a great plagiarist, because it takes the material made by a lot of people, mixes it and generates something it calls a new product, but in reality, it is, to a large extent, influenced by the intellectual product of thousands and thousands of human beings. For the current, modern capitalist system, artificial intelligence is the great marketing tool, because it generates a total inequality in the relationship with the workforce. (Teixeira, 2023).

Miguel Nicolelis deepens his analysis when discussing the issue of the workforce, illustrating that an employer can claim to have an AI application and, if the worker does not accept a reduced salary, equivalent to 10% of his current remuneration, he could choose to fire him and use said technology. In this way, Nicolelis argues that the ideology of substitution of human labor is a present reality, although he recognizes that such substitution cannot be carried out in a total way. He stresses that the real challenge does not lie in the technology itself, but in the concrete results it can produce for humanity as a whole.

As for social inequality, the neuroscientist observes the existence of individuals who invest financial resources in superfluous experiments, such as a dive to observe the wreckage of the Titanic at the bottom of the ocean. This situation, according to him, exemplifies disproportionate spending. Nicolelis expresses his concern by reporting a striking contrast: "if one walks from Avenida Paulista to here, as I did, one will see tens of thousands of people dying of hunger in the streets." In his perspective, it is essential that we direct greater attention to social inequalities, instead of allocating resources to projects that contribute little or nothing to the well-being of the majority of the population.

In the interview with Folha UoL (Teixeira, 2023), Miguel Nicolelis was asked about the competition between machines and humans and about the risks to the species, which are questions raised by researchers and people in the technology industry. The neuroscientist's response was as follows: "the risks are tremendous". And he also reiterated that machines must be used under human supervision and goes further, saying that, in the programming of an AI system, the person, before asking for something, must consider that the means to achieve the goal are valid.

The neuroscientist mentioned the movie "2001: A Space Odyssey", directed by Stanley Kubrick. In the narrative, the crew is destined to achieve a certain goal, but for unknown reasons, the onboard computer takes a divergent approach to the team's plans. Nicolelis pointed out that this fictitious situation can be reflected in reality. He noted that

while the mission was supposed to be completed, the entirety of the crew may not be present to witness this outcome. He stated that, "by delegating the execution of a mission to an autonomous system, one cannot impose on this system all the constraints that evolution has imposed on us." In other words, this perspective can be applied to various scenarios, including nuclear war scenarios, given that the logic of autonomous machines does not necessarily coincide with human logic. This analysis suggests the need for special care when dealing with systems that operate independently.

FINAL CONSIDERATIONS

What we can extract from the reflections presented in this article is that human intelligence took millions of years to develop, as stated by Miguel Nicolelis. Comparing human intelligence with that of machines is therefore a naïve simplification, since the latter are products of human ingenuity itself. It is evident that, in a controlled environment, machines can outperform individuals in certain tasks, but this is not due to an intrinsic superiority in intelligence, but to their ability to store and process vast amounts of information, formulas and commands. An example of this is the victory of a computer over a world chess champion. However, such a triumph does not imply that the computer would have the same success in other contexts.

We are still far from developing a prototype that possesses the capacity for generalization and abstraction that characterizes human intelligence. In terms of intelligence, it is important to note that science fiction often feeds myths, such as machine rebellions, wars between humans and machines, or the creation of extremely advanced machines capable of understanding complex concepts, which have been elaborated over millions of years of human intelligence evolution.

In this regard, we align ourselves with the thinking of neuroscientist Miguel Nicolelis, who emphasizes that human intelligence has developed over millions of years and will not be easily surpassed in a few decades. The complexity and dynamics of human intelligence involve operations that, at first glance, may seem simple, such as concluding, abstracting, deducing, and intuiting, and that, to date, machines, even with their significant advances, have not yet been able to fully replicate.

While the progress of autonomous machines that perform a variety of functions is indeed remarkable, the idea that they will completely replace humans, rendering them obsolete in the future, seems to be an overview. Miguel Nicolelis points out that there are still numerous interests related to the exploitation of labor, with a focus on maximizing profits and minimizing costs. This reality is often neglected by the media, which, when it

addresses the topic, does so in a subtle and superficial way, since it is not in the interest of most people who control large industrial conglomerates. For these individuals, what really matters is profit maximization and expense reduction.

We should not believe that most people are hired in their jobs solely by virtue of their acceptance or appreciation. In fact, the permanence of an employee in his position is primarily linked to the results he presents. If someone is able to perform the same function at a lower cost, most employees will realize that their continuity in employment may be threatened, possibly even immediately. Taking into account the hypothesis of an application that performs certain functions at a lower operating cost than that of an employee, it is evident that the latter may be forced to accept a salary reduction or, ultimately, be fired.

It is in this context that Miguel Nicolelis corroborates that technology, especially AI, is more of a marketing issue and becomes an instrument of salary negotiation, directly impacting those who depend on their jobs to support themselves and their families. The logic of the market, in turn, is not concerned with the social consequences of this dynamic, such as the possibility of individuals finding themselves in a situation of vulnerability, including homelessness or the risk of hunger for their dependents.

This phenomenon can be illustrated by the observation of Nicolelis, who criticizes the significant investment allocated to expeditions to the Titanic, in contrast to the lack of resources allocated to assistance to homeless people. While the importance of technological advancement is undeniable, it is imperative that humanity prioritizes human dignity. We ask ourselves: what is the purpose of our development, if, as a species, we behave so cruelly and selfishly towards our fellow men?

Sadly, millions of people die of hunger as a result of the greed of a few individuals. What is the point of accumulating all the wealth in the world if there is no concern for others and situations of vulnerability? In this context, technology reflects the concepts of Liquid Modernity proposed by Zygmunt Bauman, noting that individuals have difficulty in establishing adequate interpersonal relationships. While we seek to make machines more "human", the human being himself seems to be gradually losing his humanity, manifesting indifference towards others. Contemporary society tends to treat everything as disposable, with no intention of building permanence, whether in life projects or in interpersonal relationships.

Bauman, when asked about virtual friendships in exorbitant numbers, said that, throughout his life, he kept only five true friends. Today, it is more practical to access people, but it also becomes easier to discard them, resulting in a palpable loneliness even in the midst of a crowd. According to the sociologist, nothing is designed to last, and

current generations seem reluctant to consider relationships, regardless of their nature, for prolonged periods. According to Bauman (2017), the concepts of disposal, immediacy and consumerism are deeply rooted in contemporary generations. People tend to value "having" more than "being," and many believe that money can buy everything, including happiness.

Social networks, digital media, and mobile games are designed to provide constant stimulation to the brain, something that real life cannot match. Unfortunately, a significant portion of the population prefers the virtual universe, which presents itself as more exciting compared to reality, neglecting the development of interpersonal skills and virtues such as patience, tolerance and respect. For many individuals, the real world seems uninteresting, leading them to isolate themselves in their bedrooms, dedicating long hours to activities on computers and mobile devices. This situation is aggravated by the advent of virtual reality, which allows the creation of private universes, full of elements of personal preference. It is reasonable to assume that a growing number of people may opt for this artificial environment to the detriment of interactions in the real world, which brings us to Plato's allegory of the cave in its contemporary version.

The human being is, by nature, a social being; However, technological evolution can result in a significant increase in problems in interpersonal relationships and various psychological issues. There is a growing concern that many people will lose the ability to interact properly with others, either through lack of practice or choosing to avoid such interactions. This can culminate in social inadequacy, generating challenges that, in the past, were practically unknown.

Thus, we are faced with a generation that, when facing daily relationship difficulties, may find itself unable to resolve issues that could previously be solved through a simple and productive conversation. Given that social interaction is a fundamental aspect of life, the inability to relate can result in serious problems for families, educational institutions and the community in general. Consequently, not only will families suffer the consequences of the lack of social skills, but the school community itself and other social scenarios will also be affected. The individual, in turn, will be in an unfavorable position, facing exclusions and conflicts for trivial reasons, in addition to other issues related to his social environment.

Currently, most educators face challenges related to social and individual problems that affect their students. The phenomenon of shrinking family size has generated a growing expectation regarding the performance of children, who are often burdened by the responsibility of becoming increasingly successful. This pressure can result in frustration and suffering when such expectations are not met, leading many to develop depression, as

they cannot understand that real life differs significantly from the idealized representations on social networks or electronic games.

In the contemporary context, it is essential to cultivate a balanced mind and deep self-knowledge to face the challenges of the so-called liquid modernity. Zygmunt Bauman, in *44 Letters from the Liquid World* (2017), talks about the crisis in Education, which differs from previous crises. The uniqueness of the current crisis can be attributed, to a large extent, to the fact that we live in a world characterized by liquidity. According to Bauman, contemporary society is marked by superficial and temporary relationships, in which affective bonds are usually disposable. In addition, immediacy and consumerism have contributed to the saturation of homes with futile objects, while individuals feel increasingly empty existentially, perceiving themselves as or more disposable than the goods they have acquired and soon fall apart.

In view of this panorama, the school, as a teaching and learning institution, must adapt to this new reality of current generations, understanding the implications that this social dynamic exerts on the educational process. In classrooms we have already found several cases of childhood depression, in adolescence, students who mutilate their wrists and cases of social inadequacy, students who come into conflict with teachers being perhaps the first authority they meet in the morning, because, at home, their parents or guardians have abandoned them for a long time. The reality of teachers becomes gloomy, to the point that many of them need medication to face the strenuous routine of educational institutions. Current generations show an aversion to the teaching profession, which, in principle, should be seen as one of the most dignified and respectable. Unfortunately, in the perception of many students, this career is seen more as a punishment for some sin committed in past lives.

The irony of this situation, without the pretense of being dogmatic, lies in the fact that it is essential to maintain the correctness of our actions, even if many believe that it is no longer necessary. It is substantial to work hard, even if some consider such dedication to be futility. It is essential to maintain solid principles, even if there are mockery in a world permeated by illusions, as constantly portrayed in the media, where everything seems to be simplified and fun. The ideal, therefore, is to be authentic. There is no magic involved; Success is the result of perseverance, effort, virtue and truthfulness. Nowadays, more than ever, it is necessary that we know ourselves and understand our reality.

We cannot say whether Liquid Modernity, a concept defended by Zygmunt Bauman, will be a permanent or lasting phenomenon. What is certain is that, just as in the past we

faced wars, hunger and various problems, we will once again be challenged to dedicate ourselves to overcoming the difficulties present today.

A significant crisis often brings with it valuable lessons. The perception is that, at some point, we have failed to absorb a crucial teaching, whose urgency is now imposed, demanding our attention so that we can correct past omissions. Families will need to restructure and make the right decisions; individuals should focus on ethical and correct reflections; And institutions will have to reinvent themselves in the face of this new reality.

Zygmunt Bauman discusses a society characterized by superficial relationships, raising the question: to what extent is this condition really beneficial? He also focuses on the fragility of bonds, raising a new question: to what extent is this acceptable and for how long can this situation last? In his works, Bauman discusses consumerism, leading us to reflect on the results of consuming as a way to fill an existential void. Even in the midst of contemporary crises, Bauman expresses his belief that one of the possible solutions lies in love. However, what kind of love does he propose? Is it a permissive love, which excuses failures and seeks to reestablish normality through material gifts, or is it a demanding love, which communicates uncomfortable truths, but which, although painful at the moment, contribute to personal and, perhaps, professional growth?

In a world, in Bauman's view, where the public and the private are separated by a thin and fragile line, would it not be opportune to take into account the need to establish limits in interpersonal relationships? Many educators express concern about the lack of boundaries on the part of students; However, where should we look for these limits: at school or at home? Bauman's reflections raise more questions than certainties, but it is precisely in doubts that the space for reflection and the search for answers is found.

Bauman, in his work, observes that "American generals vehemently resist (albeit in vain) committing their soldiers to the battlefield without the prior adoption of a convincing 'exit plan'" (Bauman, 2017, p. 114). Returning to the educational question, Bauman challenges the elementary assumptions of Education, which derive from the unpredictable nature of contemporary changes. "In our volatile world of instantaneous and erratic change, the ultimate goals of orthodox education, which are based on established habits, solid cognitive structures, and stable value preferences, have become disadvantages" (Bauman, 2017, p. 117).

The definitions established by the knowledge market indicate that, as in all product markets, loyalty, long-term commitment, and indestructible bonds are analyzed as anathemas, obstacles to be removed and treated as such. In a simplified way, Zygmunt Bauman suggests that both the world and the previously unquestionable values, routines

and habits are constantly changing, becoming, in many cases, a burden. He argues that education follows the same rules as a commodity; therefore, the belief in principles that are presumed to be eternal, in line with Bauman's perspective, can, in contemporary times, be configured as a disadvantage.

Understanding the mind of a sociologist as insightful as Bauman is not a simple task, requiring a careful review of his texts. However, this difficulty turns out to be, in fact, a rewarding experience, because with each reading new learning emerges, revealing perspectives not previously considered. In his work *Liquid Modernity*, Bauman proposes a new way of perceiving and understanding the world, making it clear that the solid structures that have been formed over time, especially since World War II, no longer apply to new generations.

We thus understand the gradual dissolution of ideas, teachings, concepts, habits and institutions that, over time, resemble the melting of ice under the sunlight on a clear morning, allowing us a poetic license inspired by this renowned sociologist. For Zygmunt Bauman, "we have left the immutable and frozen labyrinth of the behaviorists, the uniform and monotonous routines elaborated by Pavlov, to the free and open market, where anything can happen at any time and nothing can be done definitively; where achieving success is a matter of luck, and nothing guarantees that this success will be repeated" (Bauman, 2017, p. 117).

In the meantime, Bauman emphasizes the unpredictability of contemporaneity and the obsolescence of concepts that were once solid and reliable, which currently, in a way, hinder more than help. He observes that "the issue to remember and to consider in all its consequences is that, in our time, the market and the *mappa mundi et vitae* overlap" (Bauman, 2017, p. 117). In simpler terms, this means that there is no space in the world that is not affected by the influence of the market and, consequently, by globalization.

Dany-Robert Dufour, for his part, argues that capitalism is not content with expanding its influence to the limits of the globe, where any object can be converted into a commodity – including rights to water resources, rights to the genome, to living species, to procreation and to human organs – but aspires to deepen this exploitation in order to liberate and commercialize what was previously the domain of private life and individual decision-making. as issues of subjectivity and sexuality, transforming them into objects of purchase and sale.

Zygmunt Bauman, in his work, points out that the mere reform of educational strategies, no matter how intelligent and comprehensive they may be, results in little or no effect. He ponders that it is not productive to attribute exclusively to teachers the

responsibility for errors or negligence. Bauman suggests that the real issue of Education lies not in the reforms or in the performance of teachers, but in the transformations that have occurred in the scenario outside schools. He notes that the contemporary world has moved significantly away from the environment for which traditional schools, as described by Jaeger, prepared their students.

Bauman characterizes this new world as a space where individuals are expected to seek private solutions to problems generated by society, rather than promoting collective solutions to issues of a private nature. This paradigm shift reflects a reversal in the roles assigned to the public and private domains. In this complex framework, today's students are challenged to live together, survive and seek happiness, facing issues that, although their previous generations have also encountered problems, are arguably more complex. And we can confirm this in the following statement by Bauman (2017, p. 118):

> During the solid phase of modern history, let me insist, it was hoped and desired that the structure defined or foisted upon human actions should imitate as far as possible the model of the labyrinth of the behaviorists, in which there was a sharp and permanent difference between right and wrong routes, and those who erred or abandoned the right path were invariably punished. while those who meticulously obeyed the script received rewards.

Thus, when we analyze it with a greater degree of depth, we find that the world was not perfect, however, compared to the complex contemporary framework, it was an environment in which, by following the established rules, the individual was safe. This conclusion is corroborated by Bauman when discussing Fordist factories and military service. The author states: "the Fordist factories and compulsory military service, the two longest arms of the solid panoptic power of modernity, were the most perfect representations of the tendency towards the rigid routinization of stimuli and responses" (Bauman, 2017, p. 119). This quote highlights the rigidity of the solid world in relation to individuals, highlighting the need for compliance with norms to avoid punishment. An example that illustrates this dynamic is the case of Private Desmond Thomas Doss (February 7, 1919 – March 23, 2006), an American military man who, during World War II, served as a soldier and first responder in the United States Army. Assigned to a rifle company during the Battle of Okinawa, Doss became the first and only conscientious objector to receive the Medal of Honor for his actions in the war. A member of the Seventh-day Adventist Church, he decided to serve as a first aider, and in a single battle he saved about 75 soldiers, even unarmed and practically alone. His life was portrayed in a biography entitled *Unarmed Soldier* and, in 2016, a film about his trajectory was released, directed by Mel Gibson and entitled "To the Last Man", starring Andrew Garfield.

Bauman continues: "domination consisted of the right to establish inviolable rules, to supervise their execution, to submit to permanent surveillance those who had to follow them, to realign deviants or to exclude them in the event of failure in the attempt to reformulate them" (Bauman, 2017, p. 119). However, this dynamic required an action that, according to Bauman, was outlined as follows: "this model of domination required a reciprocal and constant commitment on the part of administrators and administered" (Bauman, 2017, p. 119). Alluding to Liquid Modernity, Bauman asserts: "in the 'liquid' phase of modernity, however, the need for this type of orthodox managerial function has been rapidly decreasing" (Bauman, 2017, p. 119). Unlike the "solid" phase, he argues that "domination can be obtained and ensured with a much lower expenditure of effort, time and money, with the imminence of managers releasing themselves from the commitment, and no longer with surveillance and invasive control" (Bauman, 2017, p. 119). This paradigm shift causes significant changes in the behavior of individuals compared to the generations of solid modernity that preceded them, as evidenced in Bauman's assertion (2017, p. 119):

> Now it is up to subordinates to behave in such a way as to win the good graces of their bosses and motivate them to "buy" their services and their individually created "products" – just as the producers and dealers of other goods lead potential consumers to desire the goods they sell. "Following the routine" is not enough to achieve this goal.

Bauman resorts to other authors, such as Luc Boltanski and Eve Chiapello, who consider that: "those who wish to succeed in the organization that has replaced the characteristic employment model of the 'rat maze' must demonstrate ease of convenience and communicability, as well as open-mindedness and curiosity – that is, 'sell' themselves, in their entirety, as a unique and irreplaceable value, capable of improving the quality of the team". (Bauman, 2017, p. 119-120).

In this sense, we note a clear paradigm shift in relation to Solid Modernity and Liquid Modernity. In the first, characterized by Solid Modernity, individuals were rigidly controlled and forced to follow norms and rules, under penalty of punishment or exclusion, if they were unable to adapt to the current guidelines. On the other hand, in Liquid Modernity, the individual himself must conquer his space and seek to please those who appreciate the services provided or the products offered. For Bauman: "it is no longer up to the bosses to file and polish the sharp or rough edges of the personality of their subordinates, nor to hide their idiosyncrasies, homogenize their conducts or incarcerate their actions in a rigid structure of routines, transforming them into purchasable commodities" (Bauman, 2017, p. 120).

Thus, according to the following sentence, we can see what is the recipe for success in Liquid Modernity in Bauman's conception: "the recipe for success is 'be yourself', and not 'be like the rest'. It is the difference, not the sameness, that sells best" (Bauman, 2017, p. 190-120). We don't need to make much effort to realize that, in Liquid Modernity, the media quickly understood this idea of being unique and original, used it to capture the attention of young people and thus carry out campaigns aimed at mass consumption.

Zygmunt Bauman, in his analysis of Liquid Modernity, identifies consumerism as one of the most significant elements of this period. The concept of consumption, according to Bauman, encompasses superficial relations and ephemeral bonds, in which individuals are simultaneously consumers and objects of consumption, inserted in a free market. In this context, we emphasize that success lies in the originality of propaganda and in the ability to adapt to a world in constant mutation, whose rhythms and values differ widely from those experienced in Solid Modernity. To individuals of this era, the new values and ways of existing in a complex world may seem overwhelming, particularly when compared to the rigid rules and harsh punishments imposed on authenticity during Solid Modernity.

Currently, in theory, we enjoy greater freedom; however, Bauman alludes that contemporary young people often find themselves lost in the face of this newly acquired freedom. In the midst of this uncertainty, parents and guardians are desperately looking for quick solutions, which do not always prove effective. The current panorama is dominated by consumerism and individualism, where those who are original and creative, capable of extracting the best from what seems impossible, stand out.

We live in an extraordinary era, unprecedented in history, and it is difficult to imagine what the future will be like, especially when we take into account the technological evolution that can occur over a thousand years. People from that future are likely to see us with a fascinating eye, considering our current technology as magic. Thus, we have moved from a phase marked by solidity to a phase characterized by liquidity, without being able to foresee the transformations that are yet to come.

Human beings, in their incessant search for understanding and adaptation to the varied climates, societies and ways of being, face incessant challenges that involve both glories and defeats, life and death, joys and sorrows. This phenomenon is widely evidenced in contemporary social networks. We feel like privileged observers as we witness consumerism, which Bauman so eloquently criticizes, and the dynamics of social networks, in which an image or a video can be eternalized, with both positive and negative repercussions, in the vast web of human experience.

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