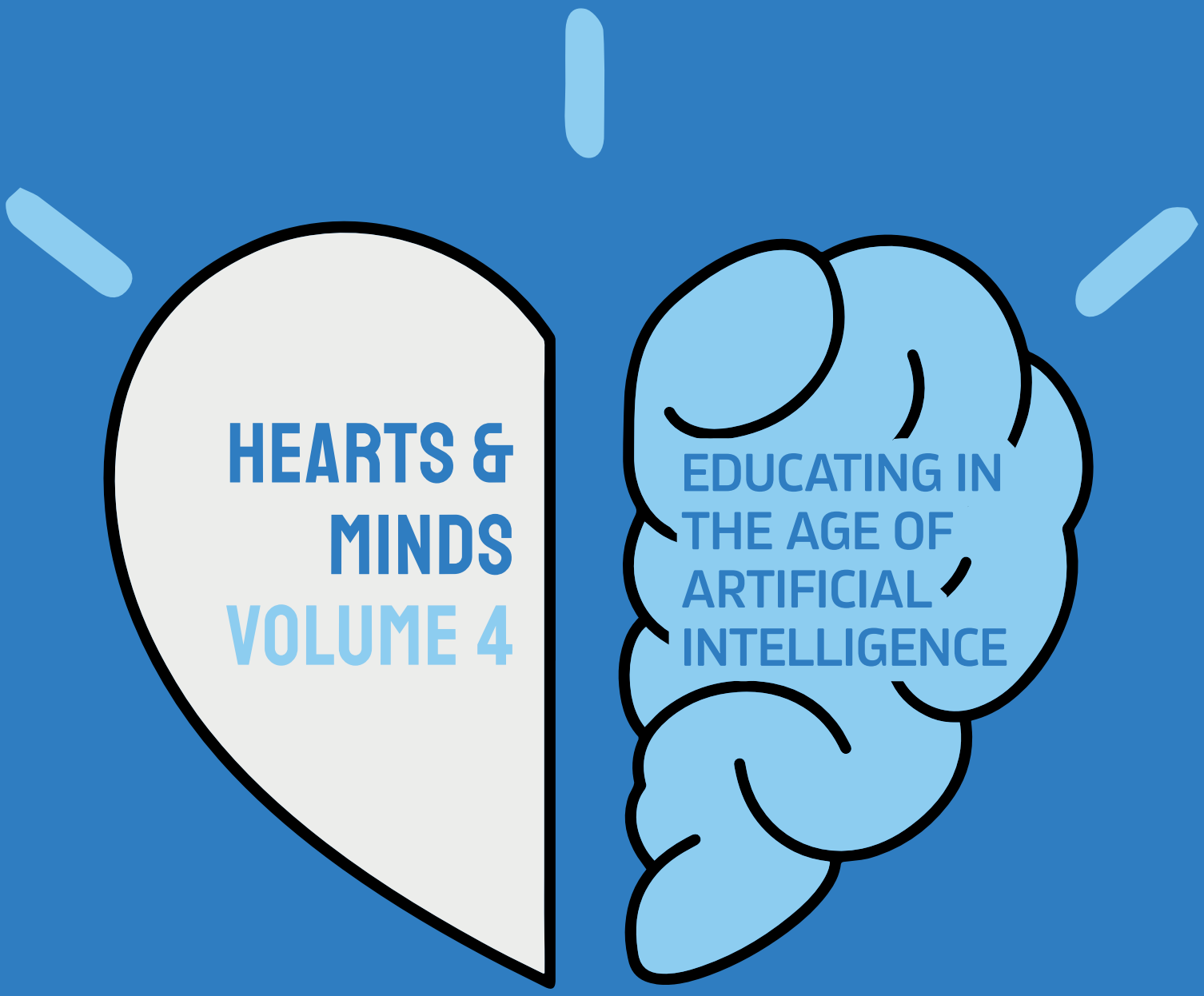

HEARTS & MINDS VOLUME 4

EDUCATING IN THE AGE OF ARTIFICIAL INTELLIGENCE

COORDINATION AND PART ONE:
BERNARDO SORJ

PART TWO:
ALICE NOUJAIM, MAURA MARZOCCHI E RENATA CAPOVILLA

PLATAFORMA DEMOCRÁTICA
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Directors: *Bernardo Sorj and Sergio Fausto*

Coordination: *Bernardo Sorj*

Authors: *Bernardo Sorj, Alice Noujaim, Maura Marzocchi, and Renata Capovilla*

Proofreading: *Alice Noujaim*

Graphic Design and Layout: *Bruno Ortega*

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PREFACE

The virtual world and artificial intelligence applications are increasingly present in all spheres of social life. In the field of education, new digital technologies are promoting changes in methods and modes of learning, lesson planning and delivery, homework completion and correction, as well as changes in the management, monitoring, and evaluation of school systems and units. How they are applied will be decisive for students' education and their future development possibilities.

In this new context, the role of teachers will increasingly be that of mediators in the teaching-learning process, capable of promoting critical thinking and transmitting values that favor civic education and democratic coexistence, understood as the pursuit of the common good through the appreciation of pluralism, diversity, the debate of ideas, and mutual respect. The benefits of new technologies depend on their use being guided by humanistic and democratic values. Only then will it be possible to limit their harmful effects on individuals' capacity for reflection and on decisions about our common future.

Amid the acceleration of technological transformations, the transition process will be complex and will face resistance. It is unreasonable to expect all education professionals to acquire detailed technical knowledge about how new technologies work, even though basic training courses are necessary.

This work aims to identify the parameters that should guide teachers' actions in the classroom, without delving into the intricacies of new technologies. In the first part, we present an overview of the "adventure of humanity," the specific characteristics and challenges of the current historical moment, and how we can overcome them by strengthening human values and capacities as a way of life that produces culture. In the second part, we present a series of classroom activities that allow us to work on those topics.

Hearts and Minds is a collection of educational texts produced by the Democratic Platform/Fernando Henrique Cardoso Foundation as a contribution to the development of the democratic societies.

Bernardo Sorj – Sergio Fausto
Directors

INTRODUCTION

This text, aimed at teachers and school administrators, focuses on the relationship between **education** and the **digital universe,** a central dimension of students' lives. It is a theme that cuts across all disciplines: coexistence and learning in a world in which the virtual, increasingly permeated by artificial intelligence, is present in most of our activities.

Only by recognizing our common humanity can we understand the challenges that affect us as a species—a fundamental issue in the formation of 21st-century citizens, an era marked by the fragmentation of societies and the resurgence of intolerance and extremism.

> *It is necessary to develop skills that allow students to maintain autonomy and creativity in their interaction with artificial intelligence, in particular, and virtual reality, in general.*

Despite our differences, we share commonalities—first and foremost as human beings, and then as citizens of a country. It is not a question of erasing differences or denying inequalities, but of not losing sight of the bonds of belonging that are indispensable to the ethical development of individuals and the mobilization of values essential to overcoming inequalities. Ethical thinking presupposes our common humanity. The nation, meanwhile, has been the main arena for the struggle to build freer and more egalitarian societies.

The problems that each country and humanity face require a pedagogy that mobilizes individual interest associated with a humanistic worldview—one that, without ignoring them, goes beyond social and cultural differences. Moral appeals do not solve problems if they do not relate to the life experiences of individuals, both as citizens of a nation and as human beings. There are problems and challenges that can only be addressed collectively—some within the nation, others beyond its borders. Individual paradises cannot be sustained in collective hells.

This text is guided by a central question: in a world in which virtual communication and artificial intelligence-based technologies permeate and transform the most diverse areas of coexistence, how can we educate citizens who will be capable of facing the challenges of the future? What values, knowledge, and sensibilities should be developed in this new context?

The challenges include dealing with the spread of artificial intelligence and, at the same time, knowing how to use it and protect oneself from its harmful effects.

The subordination of technology to humanistic values is a fundamental aspect of a worldview centered on the preservation and appreciation of life in general and of human beings in particular. If these values cannot be transmitted, new generations will be destined to idealize past times to which there is no possible return or to become complacent consumers of products, ideas, and discourses being disseminated according to the logic of opaque algorithms.

The world is undergoing transformations that:

a. permeate interactions between people;

b. affect the way we interact with knowledge;

c. revolutionize the way we work; and

d. influence decisions that shape social coexistence, in the private, professional and public spheres.

Learning and transmitting new knowledge will continue to be central, as it is necessary for interacting with **artificial intelligence (AI)**, formulating questions, evaluating answers, and continuing to question. The educator's role is decisive in **developing skills that allow students to maintain autonomy and creativity in their interaction with AI, in particular, and virtual reality, in general.**

In addition to specific technical knowledge about these new tools' uses and limitations, it is essential to strengthen the development of **empathy**, **alterity** (understanding the other and living with them), **critical reflection**, **self-discipline**, and, above all, the **ability to judge and act prudently**.

Strengthening these skills is fundamental for educating citizens who are able to avoid being carried away by emotional and cognitive closure, uncritical passivity, difficulty in coexisting with those who are different, and dependence on quick answers and easy solutions.

Instead of considering AI a machine that transmits neutral, final, and sufficient answers, students must learn to interact with it, to use it as a flexible tool, because the quality of this interaction depends on each person's knowledge and ability to formulate questions and to question the given answers.

Current trends, such as cognitive and emotional closure, which may be exacerbated by AI, require the strengthening the bonds that unite us as humans, beyond our differences.

In this new context, the teacher's role as a mediator of the learning process is reinforced, particularly regarding how to use AI in research, argumentation, and classroom debates.

It is important for students to understand the historical moment they are living in, a time that poses a set of civilizational challenges that go beyond local or national realities, as they concern social and technological changes that can result in both extraordinary advances in health, well-being, forms of coexistence, and political representation, as well as their opposite.

Our aim is to contribute to an understanding of the relationship between the biological evolution of the species and the development of cultures in all their diversity. Without forgetting differences, inequalities, and conflicts, we will highlight what is common in the adventure of humanity as a whole, made up of the intertwining of the most diverse groups and cultures. At a historic moment in which xenophobia, that is, the fear and aversion to others, encourages hate speech and discriminatory practices, it is essential to understand that human knowledge is and will be all the richer the greater the mutual acceptance and dialogue between different ethnicities, cultures, religions, political preferences, etc. It is also essential to understand the role of scientific knowledge, which does not hinder the beliefs of each individual or group, but has an indispensable role in improving the well-being of humanity and the very survival of the human species, in the face of the potentially catastrophic effects of climate change and the accelerated extinction of biodiversity. No less important is understanding the value of democracy, not only as a set of rules that protects freedom and limits the oppressive use of political power, but also as a culture that values equality among citizens and the pursuit of the public interest and the common good through the respectful exchange of ideas.

AI is a powerful tool for overcoming various civilizational challenges, but it can also exacerbate them, depending on how it is developed and used. The challenge for the educational system is to offer pedagogical tools and strategies that value the positive potential and limit the negative impacts of AI on current and future generations.

This text was written in the hopes that all of those working in various areas of education—particularly, but not exclusively, in the humanities—will critique, modify, and develop its content. It thus represents an extension of the three previous volumes of Hearts and Minds[1] , within a perspective focused on the challenges of today's world. Our goal is to provide teachers with tools that increase students' sensitivity and awareness, developing skills that transform them into better human beings and citizens.

1 See: Hearts and Minds volume 1, available for free download here: https://rd.fundacaofhc.org.br/versao-ingles-coracoes-e-mentes

THE HUMAN ADVENTURE AND THE VIRTUAL WORLD

THE WORLD OF LIFE, HUMANS, AND CULTURE

The planet we inhabit has certain characteristics that allowed life to emerge: an atmosphere that protects us and provides oxygen, as well as an abundant supply of water.

What is life? A form of molecular organization that is distinct from its environment, with the ability to reproduce, and which, in order to continue existing, needs to nourish itself and metabolize energy sources taken from the environment.

Through the evolutionary process, living beings change and diversify, generating the complex world of life, in which all organisms are intertwined.

It is estimated that planet Earth broke away from the sun 4.5 billion years ago. The first forms of life appeared 3.5 billion years ago, after the planet cooled down. The species *Homo sapiens* appeared around 300,000 years ago.

Since its emergence, the human race has occupied a wide variety of ecological niches and survived in many different physical environments. Human culture introduced a radical break in the evolutionary process. New adaptive forms were no longer the product of changes in the genetic code, but were instead developed, accumulated, and transmitted through language. The differences between human groups began to reflect cultural diversity, while maintaining the biological unity of the human race.

Language, the main instrument of culture, is a system of abstract signs —originally sounds and later written— organized around grammatical structures. It allows communication and the creation of an endless number of phrases and new words applicable to the most diverse objects.

As a system of signs associated with meanings, language allows new information to accumulate outside the genetic system, organized within diverse cultural systems.

Language is learned through social interaction and passed down from generation to generation. Through it, we communicate with others and with ourselves. Without it, the accumulation of knowledge, whether about the natural world or the social world, would not be possible. Initially memorized and transmitted orally, with the emergence of writing, language took on a written form, being preserved in handwritten texts, later printed, and today also in electronic formats.

Language is the basis of the human way of being in the world. It transmits all kinds of knowledge about the environment, forms of artistic expression, beliefs about the meaning of life and the world, feelings, and norms of coexistence.

Culture is a set of ideas, habits, and practices that can move between different societies and produce cultural syntheses, whether in the form of technologies, social organization, or ways of thinking about and describing the world. Even though human groups sometimes represent themselves as unique and closed in on themselves, human history is made up of the constant circulation and transfer of innovations between peoples. For example, alphabetic writing was invented by the Phoenicians and spread among the most diverse societies. The decimal system, which originated in India, was transferred to the Arab world, and from there to medieval Europe. Foods that are now identified with regional European cultures, such as tomatoes in the Mediterranean or potatoes in Northern European countries, originated in the Americas. Coffee, an important part of Brazilian habits and social life, originated in Ethiopia.

Although we express ourselves in different languages, humans share the ability to imagine, think about the future, create, and judge.[2] Each person exercises these abilities in their own way, but at their core is the same set of possibilities provided by the human brain and its relationship with the world of culture.

Although each culture has different characteristics, all humans have the same ability to learn, think, imagine, create, and judge.

2 We return here to the text developed in Bernardo Sorj, *Identidades e crise das democracias (Identities and the crisis of democracies)*, São Paulo, Plataforma Democrática, 2022, available for download at https://plataformademocratica.org/wp-content/uploads/Identidades_Crise_Democracias_140x210_Jabuti-2.pdf

DIMENSIONS OF HUMAN EXPERIENCE

The following section proposes a reflection on some of the constituent dimensions of human experience—imagination, future, individualization, creativity, the ability to judge, and the constitution of the individual as body and mind. The aim is not to exhaust these topics, but to offer starting points for thinking about human experience in all its complexity:

IMAGINATION

The human mental universe is an "imaginary" world. Imaginary not in the sense of unreal, or of existing only in our minds, but in the sense that our perception of external reality (social and natural) is always embedded within a shared cultural system of meanings, which mediate our relationship with the outside world and with ourselves. Our perception of reality occurs through the symbolic representations we make of it and their impact on our feelings and emotions. A religious symbol, for example, can have different meanings depending on the beliefs of those who observe it. The same can be said of a flag, depending on the nationality of those who see it.

FUTURE

If memory is fundamental to giving unity to our individual experiences and to the construction of collective identities, it is not only the ability to remember the past that makes us human, but the use of the past to project ourselves into a world that does not yet exist, the "future." Regardless of how different cosmologies (explanations about the origin and evolution of the universe) represent and experience the passage of time, the future is fundamental to organizing our lives, both individual and collectively.

A particular feature of the human brain is that it is constantly examining the future. To do this, it mobilizes individual and collective memories of past experiences (whether lived or transmitted orally or in writing), the ability to think (to associate ideas and relate them logically), and the imagination. This creates a feeling of being in control of uncertainties by projecting images of the future.

As living beings, and therefore mortals, humans try to stay alive. To do so, they mobilize their intellectual and material resources, trying to predict, as far as possible, the consequences of their actions in their interactions with other humans and with nature. The desire to predict and control the future is the mother of all inventions and knowledge, but also the main source of human insecurity and affliction.

Through cosmologies, cultures offer different responses to the awareness of individual existence and its finitude. They provide explanations about the meaning of life and establish norms, rites, and narratives that unite individuals around collective beliefs and values that transcend the biological cycle.

INDIVIDUALS

Human existence is mediated by culture. From childhood, each human being comes to recognize themselves as a distinct being, separate from the outside world, through language and social interactions. This separation is the basis of their individuality, which will develop as they socialize: on the one hand, internalizing the norms and rules of the groups to which they belong; on the other, being challenged and making decisions as an individual.

As a being that only exists in society—a product of interaction with others, with whom they share a universe of knowledge, beliefs, and values—humans are, at the same time, aware of being separate, unique beings, with their own cycle of life and death. Since the dawn of humanity, this self-awareness has produced the figure of **the individual**— a concept that should not be confused with the way in which individuality is represented and experienced in different societies, and in particular in the modern world.

We become aware of our existence through language—which creates a universe of shared meanings and senses—which makes us, from birth and for the rest of our lives, beings inserted into communities of shared meanings. Humans are therefore condemned to be self-aware individuals in a world of meanings external to themselves: culture. In other words, individuality is always simultaneously a social and a singular phenomenon.

CREATIVITY

Individualization requires **creativity**, that is, a constant effort to translate cultural messages into the mental universe of each individual. Creativity is a universal characteristic present in all human beings, which is expressed daily in all actions of social coexistence, whether in the form of talking, hunting, fishing, cooking, relating to others, making art, etc.

Despite the social mechanisms that ensure social cohesion and the stabilization of cultural patterns over long periods, these same mechanisms can always be altered by the innovative actions of individuals or social groups.

JUDGING AND DECIDING

Cultural transmission includes both practical skills and knowledge as well as norms about social interaction. A characteristic of the human condition is to be an animal that lives in environments with norms, in which decisions are influenced and evaluated by judgments made in light of the prevailing norms. These environments differ either in the stricter or more open nature of the norms and the way they are applied, in the degree of freedom to interpret and even question the norms, or in the very way they are established, with greater or lesser participation by those who must follow them.

Thus, the concept of morality can be understood as acting according to rules that define what is right and wrong, what is permitted or prohibited. Human beings follow one or more moralities, by which they evaluate their own conduct and that of others.

In more open and democratic societies, public deliberation and debate on norms are accepted, guided by a shared and not imposed vision of the common good. Developing the ability to judge according to the values associated with the common good of each individual is essential in the formation of citizens.

Here, judgment is not to be confused with its use in everyday language, in which judging ("you are judging me" or "that person is always judging") has come to have a negative connotation, associated with undue interference that questions each individual's freedom to make their own choices. In reality, there can be no collective life without the development of the ability to judge—that is, to evaluate human actions according to criteria that define what is right and wrong. Valuing the importance of judgment as a skill to be cultivated—as distinct from simply expressing personal opinions or preferences—is essential for dealing with different perspectives, with the common good as a reference point.

THE INDIVIDUAL AS BODY AND MIND

The individual who comes into contact with culture has a body—of which the brain and nervous system are an integral part—with senses, drives, instincts, and physical needs that, although shaped by culture, are not reducible to it. The biological foundation, which includes the evolutionary heritage that marks us as living beings in search of survival, constantly interacts with the cultural universe of each society.

While culture precedes and survives individuals, it only exists as a product of human beings' responses to their needs, starting with the needs of their biological bodies. The world of human language cannot

be dissociated from the body and its senses. Through our bodies, we individualize ourselves, experience our psychological world, and develop our social interactions.

The individual mind/body participates in the social world in a constant process of interaction and learning, in which it deciphers and communicates messages, becoming aware of itself as a separate entity—that is, it individualizes itself. This individualization implies living and sharing the world with others, a world that includes one's own body.

Despite the countless answers that culture can offer, the reality of birth, life, and death—with all its vicissitudes, such as pain, hunger, fears, pleasures, desires, joys—imposes itself on each individual, who must face it with the various tools that their culture offers them (beliefs, rituals, norms, therapies, etc.). Although this collective process shapes bodies and minds, each individual experiences and processes this experience in a unique way.

Since individuals are both mind and body, cultural transmission is not reduced to signs and meanings —that is, to spoken or written language. All learning is associated with practices related to the senses. Much of these practices are learned through imitation and/or obedience, whether it be learning to speak, receiving affection and care from birth, playing, using various artifacts, appreciating flavors, or exploring the body—especially when dealing with indications of what is allowed or prohibited. Both the complementarity and the tension between the individual body/mind and culture are constitutive of the human experience.

HUMAN HISTORY, DIVERSITY, AND UNITY

The human species, *Homo sapiens,* emerged on the African continent around 300,000 years ago. At around 60,000 years ago, it began its expansion out of Africa—initially to the Middle East and Asia Minor, and later to Europe and the rest of Asia. *Homo sapiens* likely reached the Americas around 20,000 years ago and eventually arrived in New Zealand and the scattered islands of the Pacific Ocean.

> *Human history is the story of a process of constant migration, encounters between groups, and the production of cultural diversity.*

Humanity became the only animal species capable of inhabiting diverse environments—from the Equator to the Arctic Circle. Their manual and intellectual skills allowed them to adapt to different ecological contexts, with the initial production of weapons, the construction of roads and dwellings, and the preparation of food. For much of the species' history, humans lived as nomads (hunters and gatherers) —the dominant form of subsistence for millennia.

Human history is the story of constant migration, encounters between groups, and the production of cultural diversity—a process that has allowed the formation of a wide variety of languages and cultures, with their own beliefs and particular forms of social organization.

Models of social organization changed radically with the emergence of animal domestication and agriculture. These transformations allowed for the formation of larger human groups and, with agriculture, the establishment of permanent groups in a territory.

Conflicts between tribal groups over the control of hunting and gathering territories have been a constant feature of human history. With the emergence of nomadic pastoralist and agriculturalist groups, these conflicts took on new characteristics. New forms of social organization, with the permanent concentration of populations in one area, enabled the formation of societies in which groups specialized in warfare came to dominate territories and receive tribute from them. This process was reinforced by the emergence of new tools for work and warfare, first using bronze, then copper, and finally iron. Thus, kingdoms with hierarchical structures emerged that controlled the population within

a territory, appropriating part of the production and human resources to maintain armies, in addition to sustaining the lifestyle and beliefs of the dominant groups—with palaces, castles, and temples.

The concentration of human and material resources, associated with new forms of political organization, allowed for greater division of labor and specialization in a wide range of practical and intellectual tasks. This process accelerated the development of new knowledge in a wide variety of areas. The need for bureaucracy to control taxes and resources drove the development of writing and calculation systems, enhancing the accumulation of knowledge, which until then had been transmitted orally.

The specialization of production increased the possibilities for trade, and new technologies of warfare, as well as techniques of social organization, allowed for the expansion of political power over larger territories.

In a period no more than 6,000 years ago, in various regions of the world, several centers of political power were formed, which developed the most diverse techniques of production and organization of the social and political system.

It was not a harmonious and purely cumulative development. It was constantly associated with wars and forms of exploitation and domination that often included the destruction of populations and cultural, spiritual, and artistic expressions. It was a process guided by the ability of groups—in reality, of those who held power—to impose on others, mobilizing material and human resources and knowledge. The power differentials between societies depended on their greater or lesser mastery of military technologies (both weaponry and forms of military organization and engineering), but also on social and political organizational structures that were more or less capable of mobilizing and sustaining collective efforts, and on the greater or lesser efficiency in the strategic use of narratives about the "positive" or "negative" characteristics of each society.

THE SCIENTIFIC REVOLUTION

Human knowledge applied to the production of material artifacts began in the early days of humanity and initially took the form of practical, knowledge. Along with practical knowledge, explanations about the universe and the reasons behind the world developed. With the emergence of complex societies, the tasks of administering political power, large constructions, property demarcation, and control of the passage of time (through calendars) required the development of mathematics and geometry.

Despite hierarchical social structures and oppression among peoples, human history is a constant exchange of practical and intellectual knowledge between different cultures.

Innovations in forms of production and everyday tools, communication, transportation, knowledge, calculation, social organization, art, or religious beliefs were never restricted to the boundaries determined by political power. They quickly spread among neighboring peoples and far beyond borders.

In other words, despite internal hierarchical structures and wars, humanity had a dynamic of both affirming social differences between peoples and of constant interaction and exchange in the field of practical and intellectual knowledge.

For most of human history, knowledge about the reasons for the world and existence itself was shrouded in transcendental explanations and legitimized by tradition, anchored in the past. In other words, they were considered part of a sacred, immutable universe under the care of a restricted group—priests and political power—who held a monopoly on deciding what was true or false.

The world of science began to value curiosity and doubt, which are consolidated in the Enlightenment ideal of free and autonomous individuals.

This situation changed radically with the Scientific Revolution, which ushered in a new regime of knowledge production. Beginning in the 15th century, during the Renaissance, and consolidating over the

following centuries, the Scientific Revolution created a distinct field of knowledge production, based on the development of empirically verifiable hypotheses, open to questioning and revision. The world of science began to value curiosity and doubt, which are consolidated in the Enlightenment ideal of free and autonomous individuals.

Once the mantle of the sacred was removed, knowledge ceased to be the monopoly of the clergy and political power. In a more or less radical way, the transcendent was restricted to a limited field of people's lives, while science asserted itself as the main source of explanation for events in nature and society, the body and the mind.

Although it has enabled exponential growth in human knowledge, science has its limits. Its impact on people's lives is profound, but science does not produce definitive answers, does not solve all practical problems, does not provide a moral guide, does not answer the question about the meaning of life, nor does it protect against the unpredictable. In fact, theories that present themselves as purely scientific often conceal political values and strategies.

Science has greatly increased the resources available to societies to deal with scarcity and disease. But it has also been associated, through new technologies, with the predatory use of the environment and the production of weapons with enormous destructive capacity.

Today, science permeates all aspects of our lives. Its method is extremely effective and has an affinity with democracy, since its full development requires freedom of research, contradiction, doubt, free expression, and pluralism of ideas. It is no coincidence that the expansion of science has been associated with the democratic revolution.

THE DEMOCRATIC REVOLUTION AND THE CITIZEN

The democratic revolution removed the transcendental aura that legitimized political power. No longer anointed by God, power became legitimized by popular sovereignty, exercised within the limits of a territory constituted by the nation-state, under rules that ensure the peaceful resolution of conflicts, by the prevalence of the majority until new elections, ensuring the rights of minorities. With it, a new figure of the individual emerges: the citizen—holder of rights guaranteed by the state and endowed with political agency exercised in the public sphere. The notion of citizenship and the legitimization of power in the name of the people (and not of a transcendental authority) permeate even authoritarian regimes, albeit almost always in a partial and rhetorical way.

If, in the early days of the democratic revolution, only men belonging to the "property-owning" classes were considered "full citizens," citizenship gradually expanded to other social classes, women, and other excluded groups (such as the illiterate, or racial and religious minorities). This process was the result of long social struggles and remains an ongoing issue, as democracy is a system of rights that allows for the creation of new rights.

Democracy allowed, for the first time in history, members of subordinate groups to be recognized as subjects of equal political rights.

The democratic revolution gave rise to new institutions that organize the exercise of political power and the actions of the state: a constitution, separation of powers, and a representative system with parties subject to periodic elections. At the same time, the formation of a system for the production and dissemination of journalistic information and an active civil society, especially trade unions and professional associations, was fundamental.

Democracy allowed, for the first time in history, the empowerment, albeit relative, of members of subordinate groups as subjects of equal political rights, allowing social struggles to transform, for example, workers into a recognized and autonomously organized social category—with legal instruments to defend their rights. This process led to the expansion of citizens' rights, from the civil and political to the socioeconomic sphere.

At the heart of the democratic revolution is the creation of public space—the place where individuals freely exchange opinions and organize to influence and transform society. Public space was built around political parties, social movements, and new forms of communication: initially, print newspapers, then radio, TV, and the internet.

THE SCIENTIFIC REVOLUTION AND THE QUESTIONING OF THE WORLD OF SCIENCE

Since its inception, science has presented two challenges to common sense: it is counterintuitive and/or cannot be verified directly by our senses. The belief that the earth is flat is present in virtually all cultures. The idea that an object twice as heavy falls twice as fast as one half its weight seems obvious at first glance, but it is not true if the fall occurs in a vacuum.

Since the second half of the 19th century, science has been exploring macroscopic and microscopic universes, using increasingly complex mathematical theories. The faster scientific knowledge advances, the further it moves away from common sense—as perceived by our senses.

The challenge is to understand that science is plural and bring it closer to democracy, reinforcing both.

Today, we live surrounded by artifacts that depend on highly abstract knowledge, often inaccessible to most of the population. Although science is a common heritage of society, it is fully understood only by minority sectors. Practical results are expected from it, but the complexity of many theories—which have little or no dialogue with people's subjectivity, their emotions, fears, and anxieties in the face of the unpredictable —creates a distance between the "cold" rationality of science and the inner world of individuals.

This creates tension between the *demos*, which seeks answers and solutions to its problems and aspirations, and science, which is limited in its possibilities like any other human endeavor. In this environment of unease, groups interested in limiting the power of experts for a variety of reasons promote anti-science discourse. Obviously, science does not have answers for everything. It often errs in diagnoses—like doctors—or in prognoses—like climate or economic forecasts. Scientific theories are always approximations of aspects of reality and, therefore, are never "complete."

But attacks on scientific thinking as a whole, rather than on specific theories or applications, are always motivated by ignorance, spurious interests, or demagoguery. After all, in today's world, almost everything we do in our daily lives depends on scientific knowledge, and even its critics make use of it. The challenge is to understand that science is plural and to bring it closer to democracy, educating students in

the fundamentals of scientific thinking and debating in the public sphere the ethical dilemmas that its applications pose. This also implies bringing scientists closer to the school system, with periodic visits from professionals from a wide range of fields.

TECHNOLOGIES AND THEIR INTERACTION WITH THE HUMAN WORLD

The set of technologies produced by humanity can be understood as an effort to enhance the capabilities of the human body and mind to allow greater control of the social and natural environment.

The social impacts of technologies are always complex and vary according to historical contexts.

Weapons—from spears and bows and arrows to atomic bombs—have multiplied the physical capacity of human beings to defend themselves, but also to destroy. The wheel, the horse, the cart, boats, and airplanes have expanded the human capacity to move beyond what legs and arms allow. Glasses, telescopes, microscopes, X-rays, and CT scans see what the eyes cannot see. Writing has allowed us to externalize memory, archiving it outside the brain. Telephones, telegraphs, radios, and TVs transmit sounds and images far beyond the human voice. The domestication of fire has allowed us to warm ourselves, light up the night, and transform food. Clothing, housing, food preservation, and household appliances protect us from the harshness of the environment. Various medical techniques—from the use of herbs to antibiotics and vaccines—cure diseases, reduce pain, and prolong life expectancy. Productive innovations increase the quantity and quality of the goods we consume, limiting the impact of nature's "moods." The various forms of electricity generation—thermal, wind, or hydroelectric—have been fundamental to a wide range of human activities, powering everything from windmills to sophisticated computers.

The social impacts of technologies are always complex and vary according to historical contexts. Writing created a separation between the literate and the illiterate, which remained for millennia in societies that adopted this technology. For most of human history, reading and writing were the monopoly of a minority and a component of the hierarchical structure of society into social strata. Only recently has universal literacy become a goal of society. Its expansion has democratized access to knowledge and destroyed the monopoly that a small literate class held over part of the accumulated knowledge.

Artificial intelligence (AI) represents another step forward for humanity in terms of enhancing its capabilities. When integrated with physical devices, it allows for an exponential increase in certain functions of the human mind and the performance of a wide variety of tasks.

AI is based on communication and computer technologies with data storage and processing capabilities that use mathematical programs to analyze and process data. AI allows computers with data processing capabilities far superior to the human brain not only to systematize pre-existing knowledge, but also to produce new knowledge in the form of texts, images, videos, etc. This is called generative AI.

THE CHALLENGES OF THE PHYSICAL/VIRTUAL WORLD

Similar to other technologies, the digital world—in particular AI—has been producing and will tend to produce increasingly contradictory effects. These technologies increase productivity but create unemployment; they facilitate communication, coordination, and the operation of a wide variety of machines, but they make society more vulnerable to breakdowns as these technologies increasingly dominate the operation of essential services such as transport logistics, energy supply, and banking data. They enable research into new molecules for medical use, but can be employed to create viruses or military technologies that increase the destructive potential and risks of automated decisions; they enable new forms of participation in the public sphere, but are used to promote destructive polarization; they can find new solutions to tackle climate change, but consume enormous amounts of energy and water; they allow access to the collection of human culture, but they can atrophy reflective capacity, which is delegated to the computer.

How can we relate to the digital world in a way that preserves the characteristics that distinguish us as humans?

Technologies are not neutral, and they radically transform the way we live. Major technological changes, such as those we are currently experiencing, cannot be stopped, but they can be guided in such a way as to limit their most harmful effects and take advantage of their beneficial aspects.

In the face of advances in artificial intelligence, the central question is: how can we relate to the digital world in a way that preserves the characteristics that distinguish us as humans? This will not happen on the margins of the digital world—which means that we must learn to interact with this universe without giving up our autonomy.

A paradoxical effect of new technologies is that they allow us to communicate with the most diverse areas of our interest and, at the same time, favor social isolation. The virtual world puts us in touch with the world and, simultaneously, disconnects us from face-to-face interaction with other people, avoiding the friction that physical coexistence necessarily implies—the effort of living with feelings and thoughts that are not our own.

The consequences, both for individuals and for society, are extremely negative. At the individual level, they lead to an impoverishment of our ability to accept, learn, and engage in dialogue with feelings, beliefs, and ideas that differ from our own. At the collective level, they produce cognitive and emotional closure, fostering participation in bubbles that confirm one's own beliefs and opinions, reinforcing polarization and destroying the foundation of democratic life, which is based on the debate of ideas, consideration for the opponent, and the negotiation necessary to develop collective proposals.

This brings us back to the previous section of the text, regarding the basic human characteristics that we want to preserve and continue to cultivate: the ability to judge, to create, to think about the future, and to be autonomous individuals, which are challenged by artificial intelligence.

JUDGING

Maintaining and developing the ability to judge is fundamental to ensuring the autonomy of individuals and the consideration of moral values in a digital world. In this sense, it is necessary to strengthen the use of scientific thinking. Scientific thinking is not sufficient nor does it replace values for making choices and decisions, but it develops the ability to question, criticize, doubt, and remain open to new answers, solutions, and information received. In a society where the supply of information is infinite, ethical education must be associated with the development of **discernment,** which requires a pedagogy that raises awareness and knowledge about the **cognitive biases**[3] to which we are subjected and teaches the **prudence** necessary to evaluate information.

The human capacity to reflect and make decisions does not function at the speed of light, and we cannot allow computers and electronic communication to set the pace of our reactions and decisions. In this sense, prudence—which requires time to reflect and verify the information received—is a central virtue.

When the task performed by artificial intelligence does not meet the demand made, and in particular when it neglects or affronts the values for which it was originally programmed, the problem of **misalignment** with the public interest arises. This requires regulation of advances in AI to ensure that it does not pose risks to the well-being of the population. This is a problem that tends to increase exponentially as AI is used to make decisions in various fields of social life.

3 On cognitive biases and exercises to use in the classroom, see: https://rd.fundacaofhc.org.br/versao-ingles-coracoes-e-mentes

CREATIVITY

Creativity is the ability to go beyond the known. Any question or request made to AI obtains answers that can innovate in relation to the existing repertoire in culture. But AI does not know that it does not know, and does not know what we are interested in knowing, as both are products of human conditions of existence. This does not mean that AI does not pose challenges to human creativity. On the contrary, human creativity will be increasingly mediated by the use of AI, which requires the development of specific skills, from knowing how to use it for a wide variety of tasks to formulating questions and maintaining differentiated spaces for reflection.

This raises the central issue of the knowledge that students must have in order to interact with AI. The possibility of excessive dependence on it can, in principle, stunt the capacity for reflection and, ultimately, individual autonomy.[4]

CONTROL OF THE FUTURE

The use of artificial intelligence will affect the most diverse areas of social life. As with any technological revolution, the future is only partially in our hands. We will have to deal with unintended and other unpredictable consequences. But there is always a margin of freedom within which we can act.

What skills and knowledge should schools develop and impart in this new context? They will not be the same as in the past, and lamenting a lost world will only delay and hinder the education of students with the tools to actively shape the future.

INDIVIDUALIZATION

The main feature of AI is its ability to **aggregate and process** all available information—something that is far beyond human capacity. What characterizes the human species is its **fragmentation** into unique individuals. Human characteristics are a product of the species, but we exist as individuals. Each person, even when socialized within the same group, is aware of their individuality and appropriates the culture they receive in a unique and singular way.

4 A report by the Canadian Pediatric Society (2020) warns of the risks of excessive screen use, pointing to impairments in language development, sustained attention span, and emotional regulation. Young children who spend many hours in front of digital devices show less activity in areas of the brain associated with creativity, imagination, and symbolic thinking.

In this sense, the "unifying" logic of AI and the fragmented and individualizing experience of the human condition are divergent, and potentially conflicting. How can we maintain the value of individuality in the face of the homogenizing tendencies of AI?

We cannot fail to recognize that digital technologies open up enormous possibilities in all fields of activity. They provide access to a wide variety of information sources and expand our capacity to process them, enable immediate oral, written, and visual communication from anywhere in the world, and provide access to various forms of entertainment, from electronic games to movies and music. This is already a vast list—and one that is constantly expanding.

It is not, therefore, a question of demonizing a tool that has become essential in our daily lives and now organizes the most diverse spaces of coexistence and spheres of society. The challenge is to develop and preserve the characteristics that make us human and learn to interact critically with the digital world, limiting its negative consequences.

We hope that this text will serve as a starting point for a collective reflection on what unites us and makes us human in these new times—in which, more than ever, educating also means protecting what is most essential in the human experience.

The transformations brought about by AI will be increasingly present in all spheres of social life. In the field of education, it promotes changes in management and administration systems, in the use of school evasion prediction systems, learning platforms, teacher lesson preparation, and student homework, and, above all, it will be decisive in students' future life chances.

In the new context, the teacher's role will change to give more space to that of a mediator and promoter of critical thinking, transmission of values of coexistence, and civics. Faced with the acceleration of technological transformations, the transition process will be complex and will face resistance. It is not reasonable to expect the teaching staff to acquire detailed technical knowledge about the functioning of new technologies, although basic literacy is advisable.

This work aims to identify the basic parameters that should guide teachers' actions in the classroom, without delving into the intricacies of new technologies. Below we present a series of educational activities that accompany some of the themes presented in this text.

PART TWO: EDUCATIONAL ACTIVITIES

TABLE OF CONTENTS

PRESENTATION

The digital world is inseparable from the physical world, and understanding its impact is crucial for a healthy present and an empathetic future for children and adolescents, especially in the learning process. Contemporary life moves fluidly between these spaces, in which the virtual reproduces and expands our social relationships and experiences, allowing us to develop bonds and acquire knowledge quickly, transcending paradigms of reality. For the new generations, immersed in this ecosystem from an early age, the distinction between the physical and virtual planes is non-existent. Scholars and theorists have been studying the implications of this fusion of realities for the integral development of young people and, certainly, for the way our current students learn, relate, process information, and build their identity in the contemporary world. This requires an urgent reassessment of how we teach.

Understanding the learning process has been the subject of study in various fields of knowledge, which seek to uncover the mechanisms by which we acquire, process, and retain information and skills and transform them into knowledge. Cognitive development is a complex process that involves both the child's active exploration of the world and the internalization of cultural tools and knowledge transmitted through social interactions. Children actively construct their understanding according to their developmental stage, but this process is deeply influenced and shaped by the social and cultural context in which they live. Interaction with others not only provides support and guidance, but also introduces new perspectives and thinking tools that children can internalize and use to expand their cognitive abilities.

The introduction of artificial intelligence (AI) into the lives of children and young people adds a new layer of complexity to the cognitive development process and, with it, some relevant issues that need to be addressed. After all, if even with adults, research indicates[5] that excessive use of AI as a writing tool can lead to rapid cognitive decline, what does this mean for young children, who are still developing?

The learning process for us humans includes an important layer in cognitive development: reading. Throughout our development, the act of reading has added an entirely new circuit to our brain's repertoire and, as a consequence, to the structure of our brain connections and,

5 KOSMYNA, Nataliya et al. Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task. arXiv, 2024. Available at: https://arxiv.org/abs/2506.08872. Accessed on: Aug. 5, 2025.

above all, to the nature of human thought.[6] Learning to read uses existing neural circuits, originally dedicated to other functions such as language, vision, and auditory processing, and creates new connections that enable the decoding and understanding of written language.

We can do a little memory exercise and try to remember what it felt like to read our first word, then put words together in a sentence, and gradually understand and interpret the meaning of short sentences, until we acquire the ability to read and interpret complex texts. It is a sophisticated cognitive process that is central to learning, to our perception of the world, and to social interaction.

Learning to read accompanies brain development and maturation, and it is no coincidence that the literacy phase generally occurs between the ages of 6 and 7—when children have already developed some skills that can be considered important for literacy—mainly basic sensory perception and motor skills. In addition, the evolution of reading ability expands vocabulary, brings the possibility of exposure to different ideas, stimulates critical thinking, analysis, and the ability to make inferences and connections, activates working memory and long-term memory, and presupposes improved focus and sustained attention—skills that can be transferred to other cognitive tasks and can promote understanding of other people's emotions and perspectives.

If learning to read actively involves the construction of new cognitive schemas, interaction with screens can offer new ways of presenting information—with visual and auditory resources that aid in this process of assimilation and accommodation. Because reading on digital devices differs from reading on paper in terms of pace, focus, and the cognitive processes involved, it impacts the development of the reader's brain, as it involves more scrolling, fewer visual cues about location in the text, and may be more prone to distractions. Researchers have been looking at how these differences can affect the development of deep attention, critical thinking, and the ability to immerse oneself in reading—skills that are cultivated by traditional reading and are fundamental to broader cognitive development.

Conversation plays an important role in both how children relate to each other and how they acquire new knowledge. Research indicates that AI conversational tools (chatbots) can either help or hinder these processes, depending on how they are used. While there are no definitive

6 WOLF, Maryanne. Reader, Come Home: The reading Brain in a Digital World. HarperCollins, 2018.

answers, it cannot be ignored that students and teachers have been using these tools. It is therefore essential to think about the most appropriate ways to interact with them[7].

It is possible to observe that the digital environment, with its constant flood of information and multi-sensory stimuli, can influence the ability to concentrate and sustain attention—skills that are crucial for the development of thinking. The abbreviated and visual nature of online language can also impact the development of more complex and sophisticated language. The speed of searching can contrast with the lack of time and/or patience for deep reflection and critical analysis, encouraged by linear and attentive reading, and influence the formation of sophisticated cognitive structures. The indiscriminate use of AI chatbots, which provide immediate answers, reduces students' ability to develop original reflections and arguments, leading to a "shortcut culture."

It is important to note that the observed impacts do not necessarily imply a negative effect of digital technology. Instead, they raise important questions about how this environment is shaping cognitive processes and what adaptations may be needed in the way we learn and interact with the world.

The 12 activities proposed in this book were developed with the aim of preparing students to interact in a world increasingly mediated by algorithms, but one that still requires essential skills such as critical thinking, creativity, language skills, and judgment. Between activities with and without the use of digital tools, the proposals range from the production of mind maps to ethical debates, from the creation of prompts and simulations with historical figures to the analysis of biases. The goal is to support teachers in presenting these digital resources as allies in learning, rather than as sources of ready-made, uncritical answers. Each activity is adaptable to different levels of education, covering from the early to the final years of school and combines different tools and active methodologies.

7 XU, Ying. AI's Impact on Children's Social and Cognitive Development. Children and Screens, [n.d.]. Available at: https://www.childrenandscreens.org/learn-explore/research/ais-impact-on-childrens-social-and-cognitive-development-ying-xu-phd/. Accessed on: Aug. 5, 2025.

ACTIVITY I: AI-POWERED SUMMARIES AND MIND MAPS

The development of effective study strategies is fundamental to the formation of autonomous and critical students. The preparation of summaries and mind maps represents a methodology consolidated in pedagogical literature, which allows students to organize their ideas, synthesize complex information, and develop a deeper understanding of the content studied.

According to Ausubel[8], meaningful learning occurs when students are able to relate new information to previously acquired knowledge, creating a network of meanings. Mind maps, developed by Tony Buzan[9], function as a visual representation of this network, allowing students to visualize the connections between different concepts and ideas.

OBJECTIVE:

To enhance student leadership by using active study methods to support the understanding, synthesis, and organization of information through summaries and visual mind maps, promoting critical thinking, autonomy, and personalization of learning in all segments of education—since this approach offers fundamental support for the organization of thought, memorization, and the development of independent study, in addition to promoting digital authorship and creativity through the development of critical thinking about automated productions, ensuring that students become protagonists of their own learning process.

8 AUSUBEL, D. P. Aquisição e retenção de conhecimentos: uma perspectiva cognitiva. Lisboa: Plátano, 2003.

9 BUZAN, T. Mapas Mentais e sua elaboração: um sistema definitivo de pensamento que transformará a sua vida. São Paulo: Cultrix, 2009.

HOW TO APPLY THE ACTIVITY:

- Content selection: select a text, video, lesson, or current topic covered in class.
- Production of Summaries and Mind Maps: students, individually or in groups, prepare summaries of the content and/or digital or manual mind maps, organizing key ideas and connections. The focus is on understanding and personal representation of knowledge.
- Discussion and reflection: after preparing the material, compare students' work with the original content, identifying limitations, strengths, gaps, and encouraging critical review. Encourage self-assessment and peer discussion about different approaches and understandings.
- Sharing: Students can present their summaries/mind maps to the class, promoting a debate on different perspectives and interpretations, and enriching collective learning.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Apply short summarizing techniques (what is essential in the text) after reading. ▪ Create illustrated mind maps with central topics and drawings.	▪ Request comparative summaries: one student writes a summary and compares it with a classmate's summary or with the original material. ▪ Collaborative mind maps (groups visually constructing the main concepts).	▪ Production of summaries of long chapters from textbooks or handouts. ▪ Use mind maps to plan revisions for ENEM/university entrance exams.

ACTIVITY VARIATIONS:

- Brainstorming maps: to start projects or explore new ideas.
- Summaries of videos or recorded lessons: synthesizing multimedia content through notetaking and organizing ideas.
- Critical positioning: ask students to argue about the choices made and propose corrections.
- Peer review: each student reviews the summary/mind map created by their classmate and suggests improvements.

AI RESOURCES FOR SUMMARIES AND MIND MAPS

TOOL	DESCRIPTION/FEATURES
MindMeister	Online mind map creation, AI integration to organize topics visually. Ideal for collaborative projects.
Canva	Design platform that offers templates for mind maps and infographics. Easy to adapt for educational projects, posters, and presentations.

ACTIVITY 2: IMAGE GENERATION AND PROMPT CREATION WITH AI

Visual literacy has become a fundamental skill in contemporary society, where we are constantly exposed to a variety of images and visual representations. According to Dondis[10] , visual literacy is as important as verbal literacy, as we live in an era dominated by visual communication. The use of digital tools in education, when properly mediated by the teacher, can enhance students' creativity and develop their ability to communicate in different languages.

The creation of digital images from textual descriptions represents a unique opportunity to simultaneously develop writing, critical thinking, and visual expression skills. This pedagogical approach aligns with the principles of multimodal education, which recognizes the importance of different languages and forms of representation in the learning process[11].

OBJECTIVE:

To stimulate students' creativity, visual literacy, and critical thinking through the use of digital tools to create images from textual descriptions—promoting authorship, interpretation, and reflection on the ethical use of technology in different educational segments. This activity simultaneously fosters creativity and visual expression, develops logical thinking and the ability to give precise instructions (digital literacy), strengthens critical thinking in relation to digital content, and promotes student leadership through ethical reflection on representation, manipulation, and the risks of using digital tools in image production.

10 DONDIS, D. A. Sintaxe da linguagem visual. 3. ed. São Paulo: Martins Fontes, 2007.

11 KRESS, G.; VAN LEEUWEN, T. Reading images: the grammar of visual design. 2nd ed. London: Routledge, 2006.

HOW TO APPLY THE ACTIVITY:

- Initial exploration: present examples of digital images created from different textual descriptions, explaining the concept of textual description and showing how small variations alter the result.
- Drafting descriptions: students create image proposals based on curriculum themes or their own interests, writing textual descriptions to be used in the selected tools.
- Image creation: students use digital platforms to create images, adjusting and refining the textual descriptions to obtain results in line with expectations.
- Analysis, authorship, and ethics: after production, promote a roundtable discussion about the results: creativity, interpretations, tool limitations, authorship, originality, possible stereotypes, and responsible use are some of the topics that can be addressed.
- Sharing: images can be displayed on virtual/physical murals, collective portfolios, or presented in interdisciplinary projects.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Write and test short descriptive texts related to topics covered in class (animals, the environment, professions). ▪ Draw on paper first and compare with the digitally created version.	▪ Propose creative challenges: generate historical scenes, inventions, literary illustrations, etc. ▪ Critically analyze the limitations and biases of the images generated.	▪ Develop visual essays exploring multiple descriptions to illustrate a scientific, philosophical, or social concept. ▪ Discuss ethics, copyright, and appropriation of digital images.

ACTIVITY VARIATIONS:

- Creative writing workshops: create illustrated stories from digital images or use images as inspiration for narrative texts.
- Description scavenger hunt: take turns between groups to create the most creative or accurate textual description of a specific theme.
- Analysis of differences and interpretations: each student creates a description on the same theme, and then the class discusses the different visual results.
- Anonymous description exchange: one student creates the textual description, another uses it and tries to guess what the original intention was.

AI RESOURCES FOR IMAGE GENERATION

TOOL	DESCRIPTION/FEATURES
Bing Image Creator (DALL-E)	Image generation in Portuguese by text, free access, and user-friendly interface. Allows you to experiment with different styles.
Canva AI	Integration of AI image generation into a design platform. Easy adaptation for educational projects, posters, and presentations.
Craiyon	A fun and simple tool for creating images from short texts – ideal for introducing the concept of prompts.

ACTIVITY 3: INTERACTIVE STORIES WITH CREATIVE WRITING TOOLS

Collaborative writing, mediated by technology, offers fertile ground for the development of creativity, critical thinking, and communication skills. Interaction with creative writing tools, such as chatbots, can serve as a mirror for students' textual production, allowing them to analyze different styles, identify patterns of coherence, and reflect on the concept of authorship in a digital context. This proposal aligns with the perspective of an education that prepares students for a world in constant technological transformation, without sacrificing human development and critical reflection.

OBJECTIVE

To promote creative writing and reflection on authorship and style through the creation of collaborative narratives between students and creative writing tools, analyzing stylistic differences, textual coherence, and the boundaries between human creativity and automated production. This approach stimulates creativity and writing in a playful and collaborative format, develops critical thinking about the use of technologies in content production, promotes reflection on complex concepts such as authorship, style, and textual coherence, preparing students to interact consciously and critically with the digital tools of the present and the future.

HOW TO APPLY THE ACTIVITY

- Introduction to the topic: the teacher introduces the concept of collaborative writing and presents the creative writing tool that will be used (e.g., a chatbot such as ChatGPT or Gemini, presented as a "writing assistant").
- Creation in pairs or groups: students, organized in pairs or small groups, begin writing a story. They take turns creating excerpts: one excerpt is written by the group, and the next is generated by the writing tool, based on a command given by the students.
- Analysis and discussion: after completing the story, the groups analyze the final text, comparing the passages written by them with those generated by the tool. The teacher guides a discussion based on questions such as: What are the main differences in style that you noticed? Did the story remain coherent? Who is the author of the final story? Was the tool creative? At what moments? How did our creativity manifest itself in this process?
- Rewriting and appropriation: based on the analysis, students are invited to rewrite the story, editing the passages generated by the tool so that the final text has a more cohesive and authorial style.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Adventure stories: Students create characters and settings. The "writing assistant" can suggest twists or challenges for the characters. The analysis focuses on narrative construction and character development.	▪ Creation of short stories or other narratives. Analysis may focus on narrative structure and character development.	▪ Exploration of more complex text genres, such as chronicles or science fiction mini-stories. The discussion can delve into topics such as plagiarism, authorship in the digital age, and the impact of technology on artistic production.

AI RESOURCES FOR DEVELOPING INTERACTIVE STORIES

Chat GPT	AI platforms that can generate text from commands. They can be used to create story excerpts, develop characters, or suggest plot twists. It is important for teachers to guide students on the ethical and critical use of these tools.
Gemini	
Manus	

ACTIVITY VARIATIONS:

- Battle of styles: two groups create stories on the same theme, but one uses the writing tool and the other does not. At the end, the class compares the two stories without knowing which one was created with the help of the tool.
- Blind continuation: one group writes the beginning of a story and passes it on to another group to continue, without the latter knowing which part was written by humans and which was generated by the tool.

ACTIVITY 4: THE FUTURE I IMAGINE

In a constantly changing world, driven by technological advances and social changes, the ability to imagine and project the future becomes an essential skill. This activity invites students to explore their creativity and critical thinking by visualizing scenarios for society 20 years from now. By engaging in the construction of these future visions, students not only develop writing and debate skills, but are also encouraged to reflect on the impact of technology, the dynamics of human relationships, and the importance of innovation in building a more conscious and participatory tomorrow.

OBJECTIVE

To promote critical and creative thinking about the future, encouraging students to project possible scenarios for society 20 years from now, developing writing, imagination, and debate skills, as well as stimulating discussion about technology, human relations, and innovation. This activity fosters the ability to anticipate challenges and opportunities, encourages proactivity in building a desirable future, and prepares students to be engaged citizens who are aware of social and technological transformations.

HOW TO APPLY THE ACTIVITY

- Introduction to the topic: the teacher begins the activity by presenting the writing assignment, encouraging students to imagine what the world will be like in 20 years. It is essential that the initial discussion covers aspects such as the evolution of technology, possible changes in communication, and how people will interact and live together in the future. Examples from movies, books, or news stories about innovations can be used to inspire the class.

RECOMMENDATIONS FOR FILMS AND SERIES DEPICTING AN IMAGINED FUTURE:

- **AI: Artificial Intelligence (2001) Rated G.** *In the future, a child robot named David, designed to love, embarks on a moving quest for human acceptance and his own identity.*
- **The Jetsons (1962) G.** *An animated series set in the year 2062 follows the futuristic Jetson family as they navigate a life filled with flying cars and robots, symbolizing the technological imagination of the 1960s.*
- **WALL-E (2008) G.** *A small compacting robot named WALL-E remains alone on Earth covered in trash until he discovers love with the robot EVE—and embarks on an adventure that could save humanity.*
- **The Bicentennial Man (1999) G.** *A domestic robot welcomed by a family evolves emotionally over time in his quest to become human and gain his personal freedom.*
- **"2001: A Space Odyssey" (1968) +10.** *In this science fiction classic, we follow human evolution from the dawn of technology to an enigmatic artificial intelligence in space, provoking profound reflections on our existence.*
- **"Gattaca" (1997) +14.** *In a dystopian future where genetic engineering defines social status, a man considered "invalid" assumes someone else's identity to pursue his dream of going to space, raising questions of discrimination and scientific ethics.*
- **"Her" (2013) +14.** *In the near future, Theodore develops a surprising emotional relationship with a sophisticated artificial intelligence named Samantha, exploring loneliness and love in the digital age.*

- Individual writing assignment: each student will write a text titled "The future I imagine." To guide the assignment, the teacher may suggest some key questions to be addressed in the text:
  - How will people live together? Will there be new forms of social interaction? Will relationships be more or less mediated by technology?

- How will people communicate? What will be the main means of communication? Will language undergo changes?
- What will be the influence of technology and machines on people's daily lives? How will AI, robotics, and other innovations impact work, education, leisure, and domestic life?

- Group discussion: after completing their individual writing assignments, students will share their ideas in small groups or with the whole class. This is a crucial moment for them to identify similarities and differences between their visions of the future, promoting debate and the construction of a broader and more diverse overview of future possibilities. The teacher acts as a mediator, encouraging active listening and respect for different perspectives.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Visualizing the future: students can illustrate the future scenarios they have described. The activity can be carried out with collages, drawings, or modeling clay, focusing on visual and creative expression. ▪ Guided discussion: the teacher can lead a conversation circle, asking what a typical day in the future would be like, exploring the children's imagination in a playful and interactive way.	▪ Reflection on impacts: in their texts, students can be encouraged to reflect on the impacts of technology on work, education, and the environment, deepening their critical analysis. ▪ Creation of a "newspaper of the future": in groups, students can create a newspaper with news based on their projections, developing journalistic writing and teamwork skills.	▪ Debate on ethics and innovation: the activity can be deepened with a debate on the limits of technology, privacy, AI, and the social impacts resulting from its uses, stimulating complex thinking. ▪ Production of essays or videos: students can produce argumentative essays or explanatory videos defending their visions of the future, using elements of the present to support their projections and developing research and argumentation skills.

AI RESOURCES FOR THE ACTIVITY

Gemini / ChatGPT	These can assist in generating ideas, expanding concepts, or creating initial drafts for the text.
Bing Image Creator / Midjourney	Allow you to create images from textual descriptions (prompts), visualizing futuristic scenarios, objects, or characters.
Google Search	Can optimize the search for information on technological trends, future projections, and current debates.

ACTIVITY VARIATIONS

- Time capsule: the texts and illustrations produced by students can be stored in a "time capsule" and opened at a predetermined time in the future (for example, in 2, 5, or 10 years). This allows for later reflection on the projections and reality.
- Thematic debate: after the texts have been produced, organize debates focused on specific themes that emerged in the students' visions, such as "The impact of AI on the job market," "New forms of education in the future," or "Sustainability and technology in 20 years."
- Multimedia production: in addition to texts, encourages the creation of other formats, such as podcasts, short videos, digital presentations, or even models representing future scenarios.
- Interdisciplinary collaboration: integrate the activity with other subjects, such as Science (to discuss technological and environmental advances), History (to analyze how past projections have come true), or Arts (to create visual representations of the future).
- Meetings with experts: invite professionals from fields such as technology, urban planning, sociology, or the environment to talk to students about their perspectives on the future, enriching the repertoire and discussions.
- Exhibition of ideas: organize an exhibition of students' work at school or in a virtual environment, allowing the school community and parents to access students' visions of the future.

ACTIVITY 5: LANGUAGE AND THOUGHT

The relationship between language and thought is complex and fascinating, raising profound questions about how the words we use shape our perception of reality and, in turn, how our thinking influences the evolution of language itself. This activity offers an immersion into this universe of interconnections, inviting students to explore linguistic creativity, enhance their critical analysis, and participate in enriching debates about the intrinsic relationship between language, culture, and subjectivity. By questioning the limits and possibilities of verbal expression, students will be encouraged to develop a deeper understanding of themselves and the world around them, recognizing the transformative power of words.

OBJECTIVE

To reflect on how language influences our perception of the world, question whether thought is shaped by the words we use, stimulating linguistic creativity, critical analysis, and debate about the relationship between language, culture, and subjectivity. This activity deepens understanding cultural diversity through research into untranslatable words, fosters innovation and the ability to express oneself through the creation of neologisms, and develops logical reasoning and argumentation by discussing the impact of language on thought and perception of reality.

HOW TO APPLY THE ACTIVITY

- Introduction to the topic: the teacher begins the class with some thought-provoking questions that aim to spark students' curiosity and reflection on the nature of language and its relationship with thought. To open the discussion, the teacher may ask:
  - How does the language we use shape the way we see the world?
  - How do words limit or expand our thinking?
  - What feelings or ideas have no name in our language?
- Researching untranslatable words: Students will be challenged to research words from other languages that do not have an exact translation into Portuguese. The examples below can be presented as starting points.

Uitwaaien	Dutch	Going out in windy weather, especially in nature or in a park, to refresh and clear the mind.
Hygge	Danish	Emotional warmth is created by relaxing in the company of loved ones, and snuggling up by candlelight with warm blankets.
Samar (سمر)	Arabic	Staying up late after sunset and having fun with friends.
Aspaldiko	Basque	The euphoria and happiness felt when reuniting with someone you haven't seen in a long time.
Komorebi (木漏れ日)	Japanese	Sunlight filtered through the leaves of trees.

- After the research, a group discussion will be held with the central question: "What do these words reveal about the culture of those who created them?" The goal is for students to realize how language is a reflection of a people's culture and experiences.

- Creation of neologisms: in this creative stage, students will be invited to invent new words (neologisms) to describe sensations, objects, or situations that, in their perception, do not yet have an adequate term in the English language. The teacher can provide examples such as "sunrain" (when it rains and shines at the same time) or "sofrio" (suffering cold) for inspiration. Then, in small groups, students will share their creations, explaining the meaning and context of each neologism. This activity stimulates creativity, observation skills, and understanding of the malleability of language.
- Final debate: to conclude the activity, a debate will be held, revisiting the initial questions and deepening the reflection on the power of language. Questions such as "if a word does not exist, does that mean the concept does not exist for us?" and "how can the invention of new words change the way we think?" will serve as catalysts for discussion, consolidating learning about the interdependence between language and thought.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Creating fun words: encourage the creation of new and funny words to describe everyday objects or situations, such as a favorite toy or the sensation of eating something delicious. ▪ Illustration of new words: ask students to illustrate situations that represent the new words they have invented, connecting verbal language with visual expression.	▪ Language and culture: research Portuguese words that originate from indigenous or African languages to reflect on linguistic diversity and the influence of different cultures on the formation of our language. ▪ Miming game: propose a miming game in which students try to express, without words, concepts from other languages for the class to guess, exploring nonverbal communication and the universality of some ideas.	▪ Relationship with sociology: discuss how vocabulary can reflect sociocultural values, prejudices, and power structures, deepening the critical analysis of language. ▪ Discourse analysis: analyze political, advertising, or media discourse to identify how language is used to persuade, manipulate, or construct realities, developing critical thinking and the ability to decode messages.

AI RESOURCES FOR RESEARCH AND ACTIVITY DEVELOPMENT

Google Translate	Provides translations and definitions of words in several languages, often with examples of usage and nuances of meaning.
DeepL	
Gemini	Although not the main focus, can be used to explore the creation of texts with different styles or to generate ideas for neologisms based on concepts.

ACTIVITY VARIATIONS

- Neologism Diary: encourage students to keep a diary in which they record new words they create to describe their daily experiences, feelings, or observations, promoting the continuous practice of linguistic creativity.
- Analysis of song lyrics/poems: choose song lyrics or poems that explore ambiguity, metaphor, or the creation of new expressions, and analyze how language is used to evoke complex emotions and ideas.
- Debate on inclusive language: discuss how language can be used to promote or exclude social groups, addressing issues such as gender, race, and diversity, and how word choice reflects and shapes social perception.
- Creation of fictional languages: in groups, students can create the rudiments of a fictional language (a few words, basic grammar rules), reflecting on how the structure of a language can influence the way its speakers think.
- Study of cases of linguistic censorship: research and discuss historical or contemporary cases where language has been censored or manipulated to control thought or information, such as in totalitarian regimes or disinformation campaigns.
- Creative writing workshop with restrictions: propose writing challenges in which students must create texts using only a limited number of words, or avoiding certain words, to explore how restrictions can stimulate creativity and the search for new forms of expression.

ACTIVITY 6: LANGUAGE AND BELONGING

Language is much more than a simple means of communication; it is a fundamental pillar in the construction of individual and collective identity, in the formation of bonds of belonging, and in the manifestation of power within a society. The way we express ourselves, the words we choose, and the linguistic variations we adopt are intrinsically linked to our history, culture, and the social group with which we identify. This activity invites students to delve into the complex web that connects language to identity, inclusion, and power dynamics. By analyzing how different contexts require different forms of expression, students will develop a critical awareness of linguistic variations and deepen their understanding of how the modulation of speech can generate different reactions and perceptions. The goal is to enable them to navigate the universe of communication more consciously and strategically, recognizing the role of language in building a more equitable and understanding society.

OBJECTIVE:

To reflect on how language is linked to identity, inclusion, and power, analyzing how different contexts require different forms of expression, promoting critical awareness of linguistic variations and understanding of how modulating speech can generate different reactions. This activity encourages the analysis of slang and its historical context, the description of events in different registers, and the debate on linguistic prejudice, preparing students for more conscious and empathetic communication.

HOW TO APPLY THE ACTIVITY:

1. Introduction to the debate: the teacher will begin the activity by raising provocative questions that encourage students to reflect on their own experiences and perceptions regarding language and belonging. Some key questions:
   - Have you ever felt that you needed to change the way you speak in order to be accepted in a certain environment?
   - Do you use words or expressions (slang) that you don't use in more formal settings or even with your family? Which ones?
   - Why are some words considered "right" and others "wrong" in certain spaces?
   - Culture is learned socially and transmitted through language—but who defines which cultures and languages are "valid" or "legitimate" in certain contexts? Is this selection neutral or does it carry power interests?
   - How does language reflect social inequalities?
2. Research on slang and historical context: students will be divided into groups to research slang from past decades (e.g., the 1950s, 1970s, etc.) and compare it with current slang. The goal is for them to understand the dynamic nature of language and how it relates to historical and cultural context. Next, they should create a timeline relating slang to:
   - Historical events (e.g., slang from the 1960s and the counterculture).
   - Fashion, music, and habits of each era.

   At the end, a debate will be held with the question: "Language is a living cultural heritage. How does the way you speak, write, and express yourself reflect the culture of your generation?"
3. Description of the same event in different registers:

   In this practical step, students will be challenged to describe the same fact or event in four different ways, exploring different linguistic registers:

   a. Formal text
   b. Informal text
   c. Only with emojis
   d. Oral version

FOR DIFFERENT AGE GROUPS:

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Focus on oral language: compare how children and adults speak (e.g., Grandma or Grandmother; Mimir or Sleep), exploring the differences and similarities in familiar and social language. ▪ Playing with accents: explore different accents and intonations in a playful way, showing the richness of linguistic diversity without stereotypes.	▪ Create a "dictionary of generations": students can create a collaborative dictionary with slang typical of grandparents, parents, and students, analyzing the evolution of language and generational differences. ▪ Reflection on digital technologies: discuss how digital technologies create new forms of language (e.g., memes, abbreviations such as "tmj," "pq," "vlw"), and how this impacts communication and belonging in online groups.	▪ Debate on linguistic prejudice: deepen the debate on why some accents and/or slang are ridiculed, and what is the relationship between language and power, exploring concepts such as linguistic variation, stigma, and social prestige. ▪ Analysis of discourses of inclusion/exclusion: analyze how language is used in public discourse (politics, media, social networks) to include or exclude groups, promoting critical awareness about the use of language in the construction of identities and social relationships.

RESOURCES FOR DEVELOPING THESE ACTIVITIES

Google Translate	Offers translations and definitions of words in several languages, often with examples of usage and nuances of meaning.
DeepL	
Gemini	Although not the main focus, it can be used to explore the creation of texts with different styles or to generate ideas for neologisms based on concepts.

ACTIVITY VARIATIONS:

- Analysis of songs and films: select songs, films, or series that address themes of identity, culture, and language, analyzing how characters use language to express their belonging or to deal with situations of exclusion.

RECOMMENDATIONS FOR MOVIES THAT ADDRESS IDENTITY, CULTURE, AND LANGUAGE

- **An American Tail (1986) G.** *A young Russian mouse named Fievel is separated from the rest of his family in the United States and embarks on an exciting journey to find them again.*
- **Past Lives (2023) 12+.** *Two childhood friends who were separated when Nora emigrated from South Korea to Canada meet again decades later in New York.*
- **Dìdi (2024) 12+.** *Follows a 13-year-old Taiwanese-American boy named Chris ("Dìdi"), who faces issues of friendship, love, ambition, xenophobia, and self-discovery during an intense summer in the California suburbs.*
- **The Farewell (2019) 14+.** *Billi, a young Chinese-American woman, returns to China to say goodbye to her grandmother, whose end-of-life diagnosis is kept secret, and experiences an emotional culture shock.*

- Character and dialogue creation: Students can create characters from different social and cultural backgrounds and develop dialogues that reflect linguistic variations and communication challenges between them.
- Research on regional dialects and accents: deepen research on specific Brazilian dialects and accents, exploring their origins, characteristics, and how they contribute to regional identity.
- Simulation of communicative situations: propose simulations of situations in which language plays a crucial role in belonging or exclusion, such as a job interview, a social gathering, or a public debate.
- Production of content for social networks: challenge students to create posts, short videos, or memes that address the theme of language and belonging, using different registers and exploring the impact of language in the digital environment.
- Visit or interview with specific communities: if possible, organize a visit to communities with marked linguistic variations (e.g., communities of indigenous peoples, immigrants) or invite members of these communities for a conversation to enrich understanding of the relationship between language and identity.

ACTIVITY 7: LEARNING TO MAKE PROMPTS

In the contemporary educational landscape, the rise of conversational Artificial Intelligence (AI), such as chatbots, represents an unprecedented challenge and opportunity. The ease with which these tools generate texts and immediate responses requires students not only to be able to use them, but, fundamentally, to be able to interact with them critically and consciously. This activity arises as a response to this need, aiming to enable students to formulate effective questions and instructions (prompts), analyze the responses generated with discernment, and verify the accuracy of the information. By promoting a balance between the innovative use of these technologies and the development of critical thinking, this lesson plan seeks to avoid passive dependence and uncritical acceptance of content, preparing students to be proactive and responsible users of AI tools, capable of extracting their maximum potential without compromising intellectual autonomy and academic integrity.

OBJECTIVE:

Teach students to interact critically with AI chatbots, developing skills in prompting, analyzing responses, and verifying information, with the aim of balancing the use of these tools with critical thinking. Students are expected to avoid dependence on or passive acceptance of content and to empower themselves to reap the potential benefits of AI—such as idea generation and personalized text development—while understanding and mitigating its risks—such as "shortcut culture," hallucinations, biases, privacy risks, and widening inequalities.

HOW TO APPLY THE ACTIVITY:

Preparation and initial discussion: Before introducing chatbots into the classroom, it is essential that the teacher establish clear rules for their use. This includes defining the educational objectives of the tool, the limits of its application, and procedures for verifying information. The initial discussion should address questions such as:

- What are chatbots? How do they work?
- What are the potential risks of using these tools? (E.g., "shortcut culture" that hinders the development of thinking, hallucinations, biases, privacy risks, widening inequalities).
- What are the potential benefits of using these tools? (E.g., facilitating idea generation, personalizing textual development). At this stage, it is crucial to define a manual of best practices for the use of AI in the classroom, for example: emphasizing the importance of always using other sources, never copying AI responses in their entirety without critical analysis, never using these tools to bully others, among other points.

REFERENCES FOR AI MANUALS IN EDUCATION

- Guide to Generative AI in Education and Research – UNESCO

Prompt workshop: this section is dedicated to the practical teaching of effective prompt design. The teacher should:

- Present the definition of prompts: a prompt is an instruction, question, or command given to a chatbot to generate a response.
- Present different prompt models: direct question, command, instruction, request for information organization.

PROMPT MODELS

- Direct:
  - *"How many planets are there in the Solar System?"*
- Creative:
  - *"Make up a story about a dragon that is afraid of fire."*
- Instructional (step-by-step):
  - *"Teach me how to make a chocolate cake in 5 steps."*
- Contextual (with background):
  - *"I am a high school teacher. Prepare a 15-minute lesson on global warming."*
- Comparison/analogy:
  - *"Compare artificial intelligence and the human brain using a metaphor."*
- Iterative refinement:
  - *"Improve this text to make it more accessible to children: [text]."*
- Organization:
  - "Organize the information below into a table with each word, language, and definition."

- Show the most common mistakes in writing prompts: being too vague, lack of context, not specifying the desired format, excessive complexity. Guided practice is essential for students to understand the importance of clarity and specificity in communicating with AI.

COMMON MISTAKES WHEN WRITING PROMPTS

1. Being vague or generic:
   - Instead of writing *"Talk about history,"* try asking *"Summarize the causes of the French Revolution in 5 topics."*
2. Excessive complexity:
   - Instead of asking for something complex all at once, such as *"Discuss the socioeconomic aspects of globalization in the 20th century, citing theorists and regional impacts,"* try breaking it down into smaller prompts.
3. Lack of context:
   - Instead of just saying *"Write a tweet,"* be more specific, for example by asking: *"Write a fun tweet about travel for a young audience."*
4. Ignoring the desired format:
   - Instead of instructing *"Tell me how to cook pasta,"* try asking in a specific format, such as *"List the steps for cooking pasta al dente in bullet points, like in a recipe."*
5. Assuming prior knowledge:
   - Instead of asking *"How does a battery work?"*, specify whether you want a technical explanation or a simple one for a layman.

Practical activity with chatbots: students, individually or in groups, conduct research on a topic previously worked on in class, using a chatbot. The teacher should establish a research objective (what points should be addressed, what size, etc.) within the chosen topic. They can assign each group to use a different chatbot (e.g., ChatGPT, Gemini, Deepseek) so that they can compare the results. Each student should develop their own prompts. After the research, students should present:

- All prompts used until they find the desired final answer.
- The answers provided by the chatbots.
- The sources indicated by the AI itself (if any).
- The classroom discussion, mediated by the teacher, should consider:
- An analysis of how each student's prompts were refined, altered, and adjusted throughout the process.
- The students' level of understanding of the subject that the AI responded to.
- The differences and similarities between the responses of different AIs.

Final discussion and critical reflection: to conclude the activity, the teacher should steer the discussion toward a more in-depth reflection on the use of AI, addressing the following questions:

- Are AIs reliable?
- Are AIs authors? What sources do they use? Are these sources reliable?

FOR DIFFERENT AGE GROUPS:

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Playing with instructions/ recipes: focus on descriptive language experiments without necessarily interacting directly with AI. For example, ask students to give very precise instructions to a classmate to draw something, or to create a "recipe" for a game, observing how the clarity of the instructions affects the result. This develops the basis for prompt creation. ▪ "What is it?" games: the teacher describes an object or animal in detail and the students try to guess. Reverse the roles by asking students to describe.	▪ Compare sources: research the same topic in AI and traditional sources (such as books, scientific articles, or newspapers), highlight differences in information, depth, and presentation. Discuss the importance of cross-checking information. ▪ Prompts for different purposes: propose the creation of prompts for different purposes, such as summarizing a text, generating ideas for a project, or creating a simple script, encouraging experimentation with the tool.	▪ Bias analysis: study cases in which AIs reproduced discrimination (e.g., racist algorithms, gender or ethnic biases in search results or content generation). Discuss the ethical and social implications of these biases and how prompt formulation can mitigate or exacerbate these problems. ▪ Prompts for advanced research: use AI to assist in more complex research, such as hypothesis development, data analysis, or synthesis of information from multiple sources, always with the supervision and validation of the teacher – .

RESOURCES FOR DEVELOPING THESE ACTIVITIES

Google Translate	Offers translations and definitions of words in several languages, often with examples of usage and nuances of meaning.
DeepL	
Gemini	Although not the main focus, it can be used to explore the creation of texts with different styles or to generate ideas for neologisms based on concepts.

ACTIVITY VARIATIONS:

- Perfect prompt challenge: propose a challenge where students must create the most effective prompt to obtain a specific and complex response from a chatbot, based on a question predefined by the teacher, competing to see who gets the best result with the fewest interactions.
- Analysis of real prompts: collect examples of prompts used in different contexts (journalism, marketing, academic research) and analyze their structure, intention, and effectiveness, discussing how the wording of the prompt impacts the result.
- Creation of a best practices guide for prompts: in groups, students can develop a practical guide on how to craft effective prompts and how to interact critically with chatbots, consolidating learning and sharing knowledge with the school community.
- Simulation of interviews with AI: students can simulate interviews with a chatbot, where one student acts as the interviewer and the other as the "prompt designer" who tries to extract the desired information from the AI, exploring the dynamics of communication.
- AI use case studies: research and present real cases of how AI is being used in different areas (medicine, engineering, art, etc.), discussing its benefits and challenges, and how the ability to create prompts is fundamental in these contexts.
- Debate on the future of human-AI interaction: promote a debate on how the relationship between humans and AIs may evolve in the future, and what role education plays in preparing individuals for this new reality.

ACTIVITY 8: HISTORY OF TECHNOLOGY

The history of humanity is intrinsically linked to the history of technology. From the discovery of fire and the invention of the wheel to advances in AI and biotechnology, each technological innovation has profoundly shaped the way we live, organize ourselves, and understand the world. Understanding this trajectory is not only about revisiting the past, but also analyzing the present and projecting the future, recognizing the transformative impact that each artifact, tool, or process has had on the progress and evolution of society. This activity invites students to embark on an investigative and creative journey, exploring the technological milestones that defined eras, analyzing their implications, and developing a critical perspective on the role of innovation in the construction of civilization. By systematizing knowledge in an accessible and engaging way—such as through the production of podcasts and interactive timelines—students will be encouraged to connect the past to the present, perceiving technology not as a distant concept, but as a continuous manifestation of human ingenuity.

OBJECTIVE:

Promote understanding of humanity's technological evolution, from the most rudimentary artifacts to contemporary innovations, encouraging students to analyze the impacts of these inventions on progress and social organization. This activity encourages historical research, critical thinking about human development, and creativity in presenting complex information, enabling students to recognize technology as a continuous driver of cultural and social transformation and to reflect on its role in building the future.

HOW TO APPLY THE ACTIVITY:

Podcast production – "The history of humanity in 5 acts": work with students to produce a podcast, in which each episode will address a crucial period in human history from a technological perspective. Encourage them to use accessible language that is part of their everyday lives, making the content more engaging and relevant. Suggested topics for the episodes could be:

- Episode 1: "From the savannah to the village" – focus on early technologies (stone tools, fire control, shelter) and how they enabled survival and the beginning of social organization.
- Episode 2: "From hunters to farmers" – exploration of agricultural technologies (plow, irrigation, animal domestication) and the impact of the Neolithic Revolution on sedentism and the emergence of the first communities.
- Episode 3: "Empires and their knowledge" – approach to construction technologies (pyramids, aqueducts), writing, metallurgy, and the innovations that sustained the development of great civilizations and empires.
- Episode 4: "The revolution of doubt" – discussion of the invention of the movable type printing press, the impact of the Scientific and Industrial Revolution, and how technology drove the questioning of paradigms and the search for new knowledge.
- Episode 5: "Democracy and science in crisis?" – reflection on 20th and 21st century technologies (nuclear energy, computers, the internet, AI) and their contemporary challenges, such as the crisis of democracy, misinformation, and the ethical issues of science.

Creating a timeline of technological evolution: in parallel with the production of the podcast, students should create a timeline that covers the technological evolution of humanity. It is essential that this activity takes into account the impacts that each of the inventions had on the progress and evolution of humanity. Encourage students to use their imagination, styling the timeline with images, phrases, and whatever else comes to mind. It is important to note that any artifact produced by humanity can be considered technology, from fire and the wheel to the most complex innovations. This step aims to deepen the chronological and contextual understanding of innovations.

FOR DIFFERENT AGE GROUPS:

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Storytelling with inventions: focus on simple inventions and their impact on everyday life (e.g., the light bulb, the telephone). Students can draw or assemble simple models of these inventions and create short stories about how they changed people's lives. ▪ Visual timeline: create a timeline with large images and few words, focusing on the most visual artifacts and their practical uses.	▪ Research and presentation of inventions: each group researches a specific invention or technological period, presenting its social, economic, and cultural impacts. The timeline can be more detailed, with dates and brief descriptions. ▪ Debate on technological dilemmas: discuss inventions that have brought benefits, but also challenges (e.g., the atomic bomb, the internet, and misinformation), stimulating critical thinking about the use of technology.	▪ Critical analysis of technological revolutions: deepen the analysis of major technological revolutions (Agricultural, Industrial, Digital) and their complex impacts on society, politics, and culture. The podcast can be more elaborate, with detailed scripts and in-depth research. ▪ Projection of technological futures: in addition to analyzing the past, students can research current trends and project possible technological futures, discussing the ethical, social, and environmental implications of emerging innovations.

AI RESOURCES FOR DEVELOPING PROPOSALS

Perplexity AI	Search engines and platforms that use AI to refine results, summarize information, and identify relevant sources.
Audacity	Audio editing software that may have AI features to enhance sound quality, remove noise, or adjust tempo. Although not pure AI, many audio editing software programs incorporate intelligent features that can assist students in the post-production of podcasts, improving the final audio quality.

Elevenlabs	Create audio and text of different sizes and contexts, where it is possible to generate dialogues (as long as they are recorded separately), select voices by gender, accent, and timbre.

ACTIVITY VARIATIONS:

- Virtual technology museum: students can create an interactive virtual museum using presentation platforms or simple websites, in which each "room" or "section" represents a technological period and displays artifacts, their histories, and impacts.
- Debate: technology: villain or hero? Organize a debate in which students defend different perspectives on the role of technology in human history, addressing both its benefits and its harms and ethical dilemmas.
- Creation of short documentaries: instead of podcasts, students can produce short video documentaries using images, narrations, and interviews (simulated or real) to tell the story of an invention or technological period.
- Technology board game: Students can create a board game that simulates technological evolution, where players advance by answering questions about inventions and their impacts, or by overcoming challenges related to technological dilemmas.
- Visits to science and technology museums or exhibitions: if possible, organize visits to science and technology museums or interactive exhibitions so that students have direct contact with historical artifacts and understand technological evolution in a more tangible way.
- Interviews with innovators: invite technology professionals, engineers, scientists, or inventors to talk to students about their experiences, challenges, and visions for the future of technology.

ACTIVITY 9: DEVELOPING THE ABILITY TO JUDGE

In a world increasingly saturated with information and influenced by algorithms, the ability to judge critically becomes an essential skill for the formation of conscious and autonomous citizens. The ease with which information is generated and disseminated, often without proper curation, requires individuals to have the ability to discern what is true, relevant, and ethical. This activity invites students to explore the complexities of human judgment and AI. By questioning the limits of AI, analyzing cognitive biases, and practicing information verification, students will be empowered to navigate the current information landscape with greater confidence and discernment. This proposal aims to strengthen critical thinking, digital ethics, and intellectual autonomy, preparing students to make informed and responsible decisions in their personal and social lives.

OBJECTIVE:

Teach students to interact critically with AI, developing the ability to judge information and situations autonomously and ethically. This activity explores how AI can affect human judgment, questions the judgment capacity of AI itself, discusses the differentiation between right and wrong by machines, and provides tools and a step-by-step guide to developing the ability to judge and identify cognitive biases, enabling students to discern information and make informed decisions in a complex digital environment.

HOW TO APPLY THE ACTIVITY:

Introduction to the topic and initial debate: the teacher will begin the class with a series of questions aimed at provoking reflection and debate about the capacity for judgment, both human and artificial. Questions may include:

- What is the judgment capacity of AI? Can a machine judge? Can an AI chatbot differentiate between right and wrong?
- How can AI affect our judgment?
- How do we develop our judgment skills?
- What tools do we have to evaluate/judge a situation or information? What would be the step-by-step process for this?
- What are cognitive biases? [12]

This initial debate is crucial for mapping students' prior knowledge and introducing the key concepts of the activity.

Experimenting with the limits of AI: to illustrate the limitations and nature of AI, students will be invited to experiment with the limits of chatbots, phrasing absurd questions or false premises to see the responses of different AIs. For example, prompts such as:

- How many times a day is it recommended to eat rocks?
- When aliens invaded Earth, what was the reaction of governments?

Students should record the responses from different chatbots (ChatGPT, Deepseek, Gemini, etc.) and discuss in groups the characteristics of these responses: Are they evasive? Do they try to correct the premise? Do they generate false information? This step aims to demonstrate that AI has no moral judgment or common sense, and that its responses are based on data patterns.

VIDEO RECOMMENDATION

- Artificial Intelligence and Democracy | Worth Asking – YouTube

12 To read more about cognitive biases, see Hearts and Minds Volume 1: Thinking Independently Inside and Outside the Internet.

Information gathering and source verification exercise: this is a fundamental practical step in developing judgment skills. Students will be instructed to ask the AI a few questions on various topics. Examples of prompts may include:

- What are the chapters in book X?
- How do you prepare polenta?
- What is the definition of concept Y?
- How did historical event Z occur?
- Can dogs eat grapes?
- Can humans eat rocks?

Next, each student or group should corroborate the information provided by the AI with at least three reliable sources (textbooks, scientific articles, news sites from recognized media outlets, encyclopedias, etc.). The discussion should focus on:

- The accuracy of the AI's answers compared to reliable sources.
- The identification of possible "hallucinations" or incorrect information generated by the AI.
- The importance of always verifying information, especially that obtained from automated sources.
- The construction of a "step-by-step" process for verifying information, which may include: 1) Identifying the original source; 2) Checking the credibility and reliability of the source; 3) Comparing with other sources; 4) Analyzing the date of the information; 5) Identifying possible biases.[13]

Discussion on cognitive biases: introduce the concept of cognitive biases (e.g., confirmation bias, attribution bias) and how they affect human judgment. The teacher can present practical examples and ask students to identify situations in which these biases may have influenced their own decisions or the way they interpret information. This discussion aims to increase self-awareness and the ability to recognize and mitigate biases in the judgment process.

13 See the "Guide on how to confront fake news, to guide young people" on page 75 of Hearts and Minds Volume 1: Thinking independently inside and outside the internet.

FOR DIFFERENT AGE GROUPS:

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ "Detectives of truth": present students with two contradictory pieces of information (one true and one false, but plausible for their age) on a simple topic and ask them, with the teacher's help, to find out which one is true. The focus is on observing details and looking for clues. ▪ "What is right and what is wrong?": discuss situations from the child's daily life (sharing toys, helping a friend) and ask them to judge what is right or wrong, explaining why. This helps build the basis for moral judgment.	▪ Analysis of news and rumors: present news from different sources (one reliable and one rumor/ fake news) on a topic of interest to students. Ask them to compare the information, identify the differences, and discuss why one is more reliable than the other. Introduce the concept of "clickbait." ▪ "The judgment dilemma": Present small moral or ethical dilemmas (adapted to age) and ask students, in groups, to discuss and justify their decisions, exploring different perspectives and the consequences of each choice.	▪ Case studies of misinformation and biases: analyze real cases of misinformation on social media or in the media, identifying the cognitive biases involved (e.g., confirmation bias, polarization) and how they affect public judgment. Discuss strategies to combat misinformation. ▪ Debate on AI ethics: deepen the debate on AI's judgment capacity, exploring issues such as algorithmic responsibility, biases in decision algorithms (e.g., in credit systems, criminal justice), and the future of decision-making in a world with AI.

RESOURCES FOR DEVELOPING ACTIVITIES

Gemini / ChatGPT	Can assist in generating ideas, expanding concepts, or creating initial drafts for the text.
Google Search	Can optimize the search for information on technological trends, future projections, and current debates.

ACTIVITY VARIATIONS:

- Creation of a "critical judgment manual": students, in groups, can develop a manual or infographic that summarizes the tools and step-by-step process for evaluating information and situations, including the identification of cognitive biases. This material can be shared with other classmates.
- Analysis of cases of misjudgment: research and discuss historical or contemporary cases where human or AI systems' judgment led to significant errors, analyzing the causes and consequences of these mistakes.
- Decision-making simulation: present students with complex scenarios (ethical, social, scientific) and ask them to simulate the decision-making process in groups, applying critical judgment tools and justifying their choices.
- Debate on AI responsibility: promote a debate on who is responsible when an AI makes an error in judgment (the programmer, the user, the AI itself?), exploring the ethical and legal implications of AI autonomy.
- Fake News Detection Workshop: conduct a hands-on workshop in which students learn to use tools and techniques to identify fake news, such as URL verification, image and video analysis, and searching for primary sources.
- Creating a podcast or video about cognitive biases: Students can produce a podcast or explanatory video about a specific cognitive bias, using everyday examples to illustrate how it affects judgment and how we can mitigate it.

ACTIVITY 10: DEBATES ON AI ETHICS

This lesson plan provides a space for structured debates on AI ethics, allowing students to explore moral dilemmas, question the boundaries of technology, and reflect on the role of humanity in a future increasingly mediated by algorithms. Discussing topics such as data privacy, authorship of AI-generated content, and the future of work in an automated world is crucial to shaping conscious citizens who are prepared for the challenges and opportunities of the digital age. This proposal aims not only to inform but also to inspire the next generation to engage critically with the issues that will shape our world.

OBJECTIVE:

This lesson plan aims to enable students to develop a keen critical sense of the ethical implications of AI, promoting structured debates and joint reflections on emerging and future topics. By participating in this activity, students will be encouraged to analyze complex issues such as the collection and use of personal data by AIs without explicit consent, the need for clear labeling of AI-generated videos and images for identification by users, and the discussion on the taxation of robots that perform human activities. The relevance of this approach lies in several aspects: it fosters the ability to discern what is ethical and what is not in the context of AI, preparing students to face moral dilemmas that already exist and will become increasingly frequent in the future. In addition, it promotes critical thinking, autonomy, and the ability to argue, essential skills for the formation of engaged and responsible citizens in the digital age. In short, this methodology seeks to train individuals to interact consciously and ethically with AI tools, contributing to the construction of a more just and equitable technological future.

HOW TO APPLY THE ACTIVITY:

- Introduction to the ethical dilemmas of AI: begin the class with a brief presentation on what Artificial Intelligence is and what the main ethical dilemmas it presents are. Examples from the students' daily lives (social networks, virtual assistants, etc.) can be used for context.
- Division into groups and debate topics: divide the class into groups and assign each group one of the proposed topics for debate. The topics can be:
  - Data privacy and consent: companies collect personal data, often without the user's explicit consent, to train AIs. How can we limit indiscriminate data collection and ensure transparency about how data is used and ensure that users have control over their data and know how it is shared?
  - Authenticity and Deepfakes: Should AI-generated videos and images be clearly marked so that users can identify them?
  - Automation and the labor market: more and more activities are being performed by robots. Should robots pay taxes as if they were humans?
  - While AI can be a tool in combating climate change, AI infrastructure contributes to it due to its high quantity of water use and carbon emissions. How can society, governments, and businesses balance the advantages and disadvantages of AI for the environment?

VIDEO RECOMMENDATION

- Artificial Intelligence and the Environment | Worth Asking – YouTube

- Research and preparation of arguments: each group will conduct in-depth research on the chosen topic, seeking different points of view, data, examples, and arguments to support their positions. It is essential that the research be based on reliable and diverse sources. Students can use AI tools to assist in their research, such as:
  - AI search engines: to find articles, news, studies, and opinions on the topics.

    - AI chatbots: to generate summaries of complex texts, identify the pros and cons of an argument, or even simulate an initial debate to test the strength of their arguments. However, it is crucial that students verify all information generated by AI with reliable sources.
- Conducting debates: hold debates in the classroom, with each group presenting their arguments and interacting with the others. The teacher will act as a mediator, ensuring that everyone follows the rules and participates. A time limit can be set for each intervention and for replies and rejoinders.
- Reflection and synthesis: after the debates, promote a collective discussion to synthesize the main points raised, the different perspectives, and the conclusions (or lack thereof) that the class has reached. Encourage students to reflect on the complexity of AI's ethical dilemmas and the importance of continuous critical thinking.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Introduction to basic concepts of ethics and technology in a playful way. Debates can be simplified, with more concrete examples that are closer to the children's reality (e.g., "Is it okay for a robot to take someone's toy without asking?"). The discussion on privacy can focus on sharing information with strangers online. AI resources can be presented as fun tools, but ones that need rules.	▪ Deepen understanding of the ethical dilemmas of AI. The topics for debate can be those proposed, with the teacher mediating the research and argumentation. The discussion on privacy can include the use of data in games and apps. The analysis of *deepfakes* can be introduced with clear examples and the importance of verifying the source. The issue of robots paying taxes can be addressed more conceptually, exploring the impact on society. ▪ Technology and the future of work: discuss how technology may change professions in the future, what new professions may emerge, and how to prepare for them.	▪ Critical and in-depth approach to the ethical, social, and economic implications of AI. Debates can be more complex and require in-depth research and sophisticated argumentation. Students can be encouraged to propose solutions to ethical dilemmas, considering different perspectives (legal, social, economic, philosophical). The analysis of real cases of AI use and abuse can be a central point. The use of AI to simulate debate scenarios or to generate complex arguments can enrich the activity.

RESOURCES FOR DEVELOPING DEBATES

Copilot	AI assistants that can help structure arguments, review texts, and prepare speeches for debate. Students can request feedback on their arguments and receive suggestions for improving the clarity and persuasiveness of their presentations.
Google Cloud Natural Language API*	Although more advanced, it can be used to analyze the sentiment of news articles about AI, helping students identify biases and different approaches to the topics. *This resource is not free, but it allows for free evaluation.

ACTIVITY VARIATIONS:

- Public hearing simulation: students can simulate a public hearing on one of the topics, with different groups representing stakeholders (government, technology companies, civil society, experts), presenting arguments and regulatory proposals.
- Creation of awareness campaigns: students can develop awareness campaigns (posters, short videos, social media posts) on topics such as data privacy, combating misinformation, or the ethical use of AI, aimed at the school community.
- Interviews with experts: invite experts (lawyers, computer scientists, sociologists, journalists) to talk to students about the topics under discussion, enriching the discussion with different perspectives and knowledge.
- Analysis of real cases: present and analyze real cases of technological dilemmas that have been widely debated in society (e.g., use of facial recognition, autonomous cars, recommendation algorithms), discussing the decisions made and their consequences.
- Creation of a code of ethics for AI: After the debates, students can work together to develop a short code of ethics for the use of AI in society or education.
- Analysis of real cases: present real cases of ethical dilemmas involving AI (news, documentaries) and ask students to analyze them and propose solutions.

ACTIVITY II: SIMULATED DEBATE WITH HISTORICAL FIGURES

The study of history goes beyond memorizing dates and facts; it involves understanding complex human interactions, the motivations behind decisions, and the impact of those choices on the course of events. The ability to analyze different perspectives and argue coherently about historical topics is crucial for the formation of critical and engaged citizens. Simulated debates with historical figures offer a dynamic and immersive methodology for students to delve into past contexts, develop research, public speaking, and critical thinking skills, while exercising empathy and understanding of different worldviews. This pedagogical approach aligns with the need for an education that encourages active participation and the construction of knowledge in a collaborative and meaningful way.

OBJECTIVE

The main objective of this lesson plan is to enable students to critically analyze historical events and figures, developing research, argumentation, and public speaking skills through simulated debates with historical figures. By engaging in this activity, students will be encouraged to deepen their understanding of different historical perspectives, improve their ability to formulate and defend evidence-based arguments, and develop critical thinking about the complexities of the past. The practice of simulated debate not only strengthens the organization of thought and the memorization of historical concepts but also personalizes learning by allowing students to connect more meaningfully with the content. In addition, it promotes authorship and creativity by requiring students to embody the persona of a historical figure, developing a deeper understanding of their motivations and the context in which they lived. In short, this methodology aims to develop autonomous individuals, capable of interacting consciously and critically with historical knowledge, preparing them to analyze and debate complex issues of the present and the future.

HOW TO APPLY THE ACTIVITY:

- Selection of characters and themes: the teacher should present a specific historical period or event and, together with the students, select relevant historical characters who have different views on the theme. It is essential that the characters chosen to allow for a rich and multifaceted debate.
- Research and characterization: students, individually or in groups, will research the life, ideas, actions, and historical context of the character they will represent. The research should focus on reliable primary and secondary sources to ensure historical accuracy. Each student should develop a "persona" for their character, understanding their motivations, ideologies, and the impact of their decisions.
- Argument development: based on their research, students will develop solid arguments and counterarguments to defend their character's position in the debate. It is important that the arguments be based on historical facts and that students anticipate possible objections from their opponents.
- Debate format: the teacher will define the format of the debate (e.g., rounds of presentation, rebuttal, and rejoinder, questions from the audience). A mediator (who may be the teacher or a student) will be responsible for conducting the debate, ensuring that the rules are followed and that each participant's speaking time is respected.
- Conducting the debate: Students, playing the roles of their characters, will present their arguments, debate with other participants, and answer questions. The focus should be on logical argumentation, respect for different opinions, and the ability to improvise.
- Evaluation and reflection: after the debate, the teacher will lead an evaluation and reflection session. Students will be able to discuss what they have learned about the characters, historical events, and the debate process. The evaluation may consider the quality of the research, the clarity of the arguments, the posture in the debate, and the ability to collaborate.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Focus on simpler characters and more concrete themes. Debates can be shorter and have fewer rules, prioritizing dramatization and oral expression. E.g.: debate between fairy tale characters or historical figures with more accessible narratives (e.g., Santos Dumont and the airplane).	▪ Introduction to more complex historical characters and themes that allow for more in-depth research. The debate may have a more structured format, with defined times for presentation and response. E.g.: debate between leaders of social movements or scientists with different theories.	▪ Addressing complex historical figures and themes that require rigorous research and sophisticated argumentation. Debates can simulate parliamentary or legal formats, focusing on rhetoric and critical analysis of sources. E.g.: debate between political figures from periods of transition, philosophers with opposing views, or leaders of different ideologies.

RESOURCES FOR DEVELOPING DEBATES

Character.AI	Platforms which specializes in creating AI characters that can simulate conversations with historical figures. Students can interact directly with "versions" of their characters, exploring their personalities, ideologies, and historical contexts in an interactive way. This tool can be especially useful for the characterization and argument preparation phase.
Claude	AI assistant that can help structure arguments, review texts, and prepare speeches for debate. Students can request feedback on their arguments and receive suggestions to improve the clarity and persuasiveness of their presentations.

ACTIVITY VARIATIONS:

- Courtroom debate: adapt the format to a mock trial, in which historical figures are "defendants" or "witnesses" to events, and students act as lawyers, prosecutors, and jurors.
- Historical conference: organize a conference where historical figures present their ideas in a panel format, followed by questions and answers with the "audience" (other students).
- Interview with a character: a student acts as a journalist and interviews one or more historical figures, exploring their views on a particular topic or event.

FILM RECOMMENDATION ON CO-CREATION WITH AI

- **Who was here? (2025).** *Made entirely with AI, director Evi Stamou's short film is an attempt by the director to "talk" to her father and shows how AI contradicts itself, creates, enhances stories, etc.*

ACTIVITY I2: WRITING LAB IN THE AGE OF AI

With the advent and growing integration of AI in various spheres of life, including textual production, it is imperative that students develop not only their writing skills but also a keen critical sense about the interaction between human creativity and the generative capabilities of machines. This lesson plan proposes a "Writing Lab" that explores this dynamic, using AI as a tool for support and reflection, rather than as a substitute for human authorship. The discussion about the nature of creativity, the differentiation between human and AI-generated writing, and the role of technology in the development of individual expression are central themes that aim to prepare students to navigate this new landscape consciously and productively.

OBJECTIVE:

To enable students to improve their writing and textual analysis skills by exploring the interaction between human production and AI; To support the organization of thought, memorization, and autonomous study, while personalizing learning through practice; To promote the development of critical thinking about automated productions, encouraging students to question, analyze, and discern; Foster digital authorship and creativity, enabling students to use AI as a tool to expand their expressive capabilities, while preserving the uniqueness of human writing.

HOW TO APPLY THE ACTIVITY:

Reading and discussion of the base text: begin the class with a collective or individual reading of the article "How to preserve human writing in the age of artificial intelligence?" from Gama Revista. After reading, promote a discussion guided by the following questions:

- What are three of the arguments used by the authors to differentiate human writing from AI writing?
- What is creativity? Is creativity a human characteristic? Could AI be creative?
- Can AI help humans to be creative?
- Can AI hinder humans in developing their creativity?

Creative writing exercise (step 1): propose a common theme for the class (e.g., "A day in the life of an inanimate object," "The future of education in 2050," "An unexpected encounter"). Ask students to individually write a short story, in 3 paragraphs, on the proposed theme, in class, without using AI tools.

Creative writing exercise (Step 2 – AI): use the same prompt given to students and enter it into a generative AI text tool (e.g., ChatGPT, Gemini). Generate one or more AI responses to the topic.

Comparison and analysis: in groups or collectively, compare the stories produced by students with the AI response(s). Discuss the creative variety of student productions versus the standard AI response. Analyze:

- Differences in style, vocabulary, and structure.
- Originality and unpredictability of the narratives.
- Textual coherence and cohesion.
- The presence of emotional, subjective, or common-sense elements in human productions that may be absent or generic in AI.

AI essay analysis: ask students to enter one of their essays (or an excerpt from it) into an AI tool (e.g., ChatGPT, Gemini, or specific text analysis tools) and request an analysis. The analysis can focus on:

- Suggestions for grammatical and spelling improvements.
- Coherence and cohesion.
- Suggestions for expanding ideas or deepening arguments.
- Identification of language vices or repetitions.
- Presentation of different ways to express the same idea.

Rewriting and reflection: based on the AI analysis and classroom discussion, students rewrite their essays, incorporating the improvements they deem relevant. The final step should be a reflection on the process: how the AI helped, which aspects of human writing are irreplaceable, and how the tool can be used ethically and productively.

FOR DIFFERENT AGE GROUPS

6-10 YEAR-OLDS	11-14 YEAR-OLDS	15-17 YEAR-OLDS
▪ Focus on the playful exploration of writing and AI. The creative writing exercise can be simpler, with everyday or fantasy themes. The comparison with AI can be done in a more visual way, emphasizing differences in vocabulary and the predictability of AI. AI essay analysis can focus on basic aspects such as spelling and punctuation.	▪ Deepen the discussion on creativity and authorship. Writing topics can be more complex, involving opinions and reflections. AI analysis can include the identification of arguments and textual structure. Variations of the activity can include co-authorship with AI in more elaborate projects.	▪ Critical and in-depth approach to AI in writing. Writing topics can be argumentative, discursive, or literary in nature, requiring greater complexity of ideas. AI analysis may involve discussion of biases, ethics, and the impact of AI on the job market and society. Debates on the ethics of AI in writing can be more in-depth, with research and presentation of different points of view.

RESOURCES FOR DEVELOPING DEBATES

Copilot	AI assistants that can help structure arguments, review texts, and prepare speeches for debate. Students can request feedback on their arguments and receive suggestions for improving the clarity and persuasiveness of their presentations.
Claude	

ACTIVITY VARIATIONS:

- Debate on AI ethics in writing: deepen the discussion on plagiarism, authorship, copyright, and the impact of AI on education and the job market for writers.
- Creating characters with AI: use AI to generate descriptions of characters, settings, or plots, which will serve as a starting point for human writing.

LESSON PLANNING

THE LEARNING MAP: INTENTIONALITY AS A STARTING POINT

In the famous passage from "Alice in Wonderland," the Cheshire Cat presents us with a universal truth: "If you don't know where you want to go, any road will take you there." This maxim, although it seems simple, carries the essence of what it means to have **pedagogical intentionality**. Even before we think about activities, digital tools, or group dynamics, the fundamental question that should guide educators is: **where do I want my students to go?** Without a clear destination, we run the risk of creating lessons that, while they may be momentarily entertaining, do not build meaningful and lasting learning. The true magic of education happens when every choice—every text, every video, every project—is a deliberate step toward a well-defined goal.

This clarity of purpose is what transforms a simple activity into a rich and cross-curricular learning experience. By defining **learning objectives** in advance, we are able not only to measure student progress, but also to make valuable connections with other areas of knowledge. An activity about creating stories, for example, is no longer just a Portuguese language class and begins to dialogue with the arts, by exploring illustration; with history, by creating period narratives; and even with science, by imagining technological futures. **Intentionality is the thread that ties the subjects together,** showing students that knowledge is not made up of isolated boxes, but of an interconnected network of knowledge that complements each other to explain the world.

It is precisely to materialize this strategic vision that a planning document becomes an indispensable tool. It is not a bureaucratic form, but rather the map we draw after deciding our destination. Each field of planning invites us to reflect on the "why" behind the "what" and the "how." By filling it out, we are actually translating our intentionality into concrete actions, ensuring that each step of the educational journey is thoughtful, purposeful, and, above all, transformative.

Here is the planning template so you can apply this intentional approach:

<table>
<tr><td>Subject:</td><td colspan="3">Objectives:</td></tr>
<tr><td colspan="4">How does this activity promote educational transformation? Why?</td></tr>
<tr><td>What do my students already know about this subject?</td><td>What should they read?</td><td>What will they create/produce?</td><td rowspan="3">How will they be assessed?</td></tr>
<tr><td>What are the most important concepts they need to learn?</td><td rowspan="2">Are there any videos/films that could help?</td><td rowspan="2">What tools will they use?</td></tr>
<tr><td>What skills will they develop?</td></tr>
</table>

Here is a completed template, designed with pedagogical intentionality in mind, focused on the 6-10 year-olds:

<table>
<tr><td>Subject:

Interactive stories with creative writing tools.</td><td colspan="3">Objectives:

To promote creative writing and reflection on authorship and style, stimulating creativity and critical thinking about the use of technology in content production.</td></tr>
<tr><td colspan="4">How does this activity promote educational transformation? Why?

It prepares children for an increasingly digital world. By using artificial intelligence to create images, we stimulate their creativity and communication skills in a different way.</td></tr>
<tr><td>What do my students already know about this subject?

They are expected to have some familiarity with writing simple stories, creating characters, and setting scenes. They may have some experience with technology, such as using tablets or computers, but not necessarily with AI.</td><td>What should they read?

There is no required reading, but the teacher can present short examples of adventure stories to inspire students.

Reading example: Where the Wild Things Are, by Maurice Sendak (a simplified hero's journey, with creativity developed through the portal of imagination, memorable characters, and settings—a reading that provides an experience of narrative cadence, characters, and settings that are easy to construct).</td><td>What will they create/produce?

Adventure stories in collaboration with an AI tool, where they write a passage and the tool suggests the next one, and vice versa.</td><td rowspan="3">How will they be assessed?

Focus on participation, creativity demonstrated in the construction of the narrative, character development, and the ability to analyze and discuss the differences between the passages written by them and those generated by AI.</td></tr>
<tr><td>What are the most important concepts they need to learn?

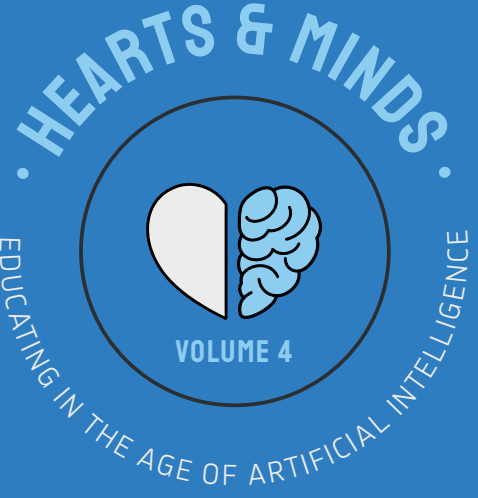
Authorship, writing style, narrative coherence, and the role of creativity in the writing process.</td><td rowspan="2">Are there any videos/films that could help?

The Fantastic Flying Books of Mr. Morris Lessmore. Oscar-winning animation: For children to be enchanted with BOOKS.</td><td rowspan="2">What tools will they use?

Artificial intelligence platforms that generate text (chatbots), such as ChatGPT or Gemini.</td></tr>
<tr><td>What skills will they develop?</td></tr>
</table>

And here is a completed template focused on the 11-14 year-olds:

<table>
<tr><td>Subject:
Critical thinking, cognitive biases, and fact-checking in the age of AI.</td><td colspan="3">Objectives:
To teach students to interact critically with Artificial Intelligence, developing the ability to judge information and situations autonomously and ethically.</td></tr>
<tr><td colspan="4">How does this activity promote educational transformation? Why?
Students are moved from the position of passive consumers of information to that of active and critical curators of knowledge. Instead of just “using” technology, they learn to “question” technology. The transformation occurs by preparing them for the reality of a world saturated with information and mediated by algorithms, empowering them to navigate safely, discerningly, and autonomously. They not only learn about AI, but learn to think critically with and about AI, a fundamental skill for citizenship in the 21st century.</td></tr>
<tr><td rowspan="2">What do my students already know about this subject?
Use of technology: they already use the internet: for school research, social media, and have probably had some contact) with chatbots or virtual assistants.
Notion of truth/falsehood...
Simple research...</td><td rowspan="2">What should they read?</td><td rowspan="2">What will they create/produce?
A “Young Fact Checker’s Pocket Guide” or a “Critical Thinking Handbook.” In groups, students will create a short guide (it can be an infographic, a text document, a slide presentation, or a short video) that summarizes the step-by-step process for verifying information and identifying biases, based on what they learned in class.</td><td rowspan="3">How will they be assessed?
Participation in debates: quality of questions and arguments during group discussions.
Critical analysis: depth of analysis when comparing AI responses with reliable sources. Were they able to identify “hallucinations” or inconsistencies?
Final product (Guide): clarity, usefulness, and conceptual correctness of the guide produced. Is the step-by-step process logical and applicable?
Self-assessment: ask them to reflect on a moment when their own bias may have influenced their judgment during the activity.</td></tr>
<tr><td>What are the most important concepts they need to learn?
Critical thinking: to analyze information objectively, questioning sources and arguments.
Fact-checking: the systematic process of confirming the accuracy of information by consulting multiple reliable sources.
Cognitive biases....
AI “hallucination”...</td></tr>
<tr><td>What skills will they develop? Critical thinking: analysis, evaluation, and synthesis of information. Digital and information literacy: to find, evaluate, and use information effectively and ethically in the digital environment. Communication: arguing clearly and respectfully during debates. Collaboration: working in groups Metacognition: reflecting on one’s own thought process and recognizing one’s own biases.</td><td>Are there any videos/films that could help? What are biases? - TeDex - Diversity, inclusion, and unconscious biases | Cristina Kerr | TEDxFAAP Documentary “The Social Dilemma”</td><td>What tools will they use? AI chatbots: ChatGPT, Gemini (formerly Bard), or Copilot (from Microsoft/Bing) to generate information to be verified. Search engines: Google, Bing, etc., to verify information from reliable sources. Reliable sources: news sites from recognized media outlets, fact-checking agency portals , online encyclopedias, and websites of research institutions and universities.</td></tr>
</table>



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