The Influence of Digital Technologies on Students' Cognitive Function and Mental Health

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Abstract

Digital technologies have transformed education and student life by providing unprecedented access to information and flexible learning opportunities. However, their excessive use has also raised concerns regarding knowledge retention and mental health. This paper investigates the ways in which excessive reliance on digital tools contributes to declining critical thinking skills, superficial knowledge acquisition, and increasing psychological difficulties among students. Drawing on international research as well as a survey of Slovak university students, the study highlights the phenomenon of "digital amnesia," whereby dependence on search engines and digital devices undermines long-term memory retention. Furthermore, it explores links between intensive online activity and symptoms of anxiety, depression, sleep problems, and decreased concentration. The findings suggest that while digital technologies enhance access to information, they simultaneously undermine deep learning processes. The paper emphasizes the responsibility of educational institutions to foster digital literacy, critical thinking, and mental well-being, ensuring that students use technologies wisely while preserving knowledge and resilience.

Keywords: Digital Technologies, Knowledge Decline, Digital Dementia, Critical Thinking, Student Mental Health

1 Introduction

In recent decades, digital technologies have become an inseparable part of our everyday lives. They influence the way we communicate, work, learn, and even spend our leisure time. The

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Internet has enabled unprecedented access to information that, until recently, was difficult to obtain. This development has reshaped our understanding of education, knowledge, and the very meaning of learning in modern society. In a context where information is instantly accessible, a fundamental question arises: does an individual still need to systematically develop their own knowledge base, or is rapid access to data sufficient? Yet, it is increasingly evident that knowledge—rather than mere information—has a lasting impact on the quality of life of both individuals and society as a whole. An educated person is better able to understand the world, evaluate reality critically, solve problems calmly and rationally, and contribute to social progress. Digitalisation, therefore, should not be viewed as opposing education; instead, it represents a new challenge for educational systems. While it enables modern forms of learning, it also underscores the importance of fostering digital literacy, critical thinking, and the responsible handling of information. This is the essence of the contemporary educational process seeking balance between technology and wisdom, between access to knowledge and true understanding.

2 The Importance of Education for Society

The process of education may be regarded as a key mechanism of development and progress in every society. It constitutes a systematic, lifelong process of knowledge formation extending from birth to old age and exerts numerous positive effects on human personality. Long-term, systematic learning fosters individual development across multiple dimensions, including the cultivation of communication skills, the ability to manage crisis situations, and resilience to populism, among others. A direct correlation can therefore be observed: the higher the level of education, the greater the quality and efficiency of the state and society. This relationship is reflected, for example, in the quality of healthcare, the degree of corruption, and overall public safety. A modern and developed state that possesses a long-term vision of building a prosperous society invests significant financial resources into education. As a result, a confident and competitive community of individuals gradually emerges one capable of succeeding in the labour market while contributing to scientific discoveries and technological innovation, including patents. From an international perspective, such progress enhances the global standing of a nation. A good example can be found in the State of Israel, where numerous successful technological start-ups and scientific breakthroughs are generated every year.

From the perspective of education's current social significance, it is particularly important that educated and well-informed individuals are more capable of critically analysing and resisting misinformation, hoaxes, and conspiracy theories, which increasingly shape public attitudes and social dynamics today. In extreme cases, often intensified by the influence of social media, this leads to the dangerous phenomenon of societal division and polarization. The level of interpersonal aggression rises and becomes visible in public discourse, where citizens

frequently demonstrate an inability to listen to or respect opposing viewpoints a fundamental component of a mature and democratic society. As a result, public debate, especially on social networks, has become markedly vulgarized, with a decline in respect toward ideological opponents. High-quality education and citizens' knowledge can therefore serve as essential tools for fostering mutual respect, civility, and constructive social dialogue (Kersting, 2023, p. 59). On an individual level, the quality of education also carries a notable psychological dimension. Attaining a higher level of education can positively shape an individual's personality by fostering greater rationality, emotional composure, and the ability to manage conflicts effectively and with perspective. Education also contributes to the development of healthy self-confidence, which is essential for everyday functioning, ambition, and resilience when coping with psychologically demanding situations. According to several empirical studies, educated individuals tend to maintain stable, well-paid employment, ensuring a decent standard of living throughout life. This demographic also exhibits lower divorce rates and reduced involvement in criminal behaviour, forming a socially balanced and rationally oriented population (Průcha, 2019, p. 15).

From a historical perspective, access to education has been a privilege for most of human history. Educational opportunities were typically reserved for a small percentage of the population usually the descendants of individuals with significant social status, wealth, or professional standing. In the past, only a small percentage of people were literate or intellectually cultivated, while the vast majority resided in rural areas, concentrating primarily on securing food and basic survival for their families. Over time, particularly under the influence of the Industrial Revolution and earlier educational reforms enacted during the reign of Maria Theresa, access to education gradually broadened to encompass wider segments of society. This transformation led to cultural and modernisation advances with several key benefits, including improved living conditions and quality of life. As scientific progress especially in healthcare accelerated, the global population grew significantly. While the world had approximately one billion inhabitants in the mid-nineteenth century, it now approaches nine billion, nearing the limits of sustainable capacity. Education thus continues to play a fundamental role in shaping not only the intellectual and moral dimensions of human civilization but also its capacity for sustainable development in the future.

2.1 The Importance of Education in the Digital Society

In the following section, we examine current trends and factors affecting the quality and level of education in society in the context of modern digital technologies. Education continues to be a central element of every developed society. Human life has undergone significant modernisation over the past two centuries, as discussed in the previous chapter. Until the mid-nineteenth century, humanity experienced relatively few systematic discoveries, such as the invention of the printing press and several other notable advancements. However, since the Industrial Revolution, numerous scientific and technological innovations have radically

transformed everyday life, which has, in turn, influenced both the status and the overall level of education within society.

The Industrial Revolution brought about unprecedented social change: individuals began to engage in structured education, receive wages for their labour, participate in cultural activities, and adopt healthier lifestyles. The inventions of the train and the automobile allowed people to travel greater distances, whereas previously, they spent their entire lives in one place. Following these transformations in the nineteenth century, the modern world experienced another major wave of innovation the information revolution associated with the emergence and expansion of the Internet. The rise of digital networks initiated a social and communicative revolution that reshaped the very nature of human interaction. Daily life began to adapt to the presence of digital technologies, and human activity increasingly shifted into the virtual sphere. The Internet fundamentally altered numerous dimensions of life, including communication, access to information, work processes, private life, leisure, and the formation of social relationships.

Given these developments, it is crucial to examine the specific impacts of the Internet on society both its contributions to development and its potential to erode knowledge and communication skills. From an analytical perspective, the Internet, as a product of the information revolution, introduced multiple dynamic innovations that have profoundly influenced not only social functioning but also educational processes. Human communication has become digitalised, shifting largely into virtual space. Globally, the Internet can be regarded as one of the defining symbols of globalisation the worldwide interconnection of information and economies. It enables instantaneous communication across the planet, remote work, and digital entrepreneurship (Haidt, 2025, p.132). Consequently, the concept of digital literacy has become increasingly important the ability to use digital technologies (the Internet and artificial intelligence) efficiently and responsibly, avoiding financial or psychological harm while leveraging them for personal and professional growth.

However, alongside its positive aspects, the digital transformation also brings several risks that can negatively affect various dimensions of human life, including privacy, communication, work, and the overall level of knowledge. Managing these influences is not a simple skill. Many individuals struggle to adapt, leading to disruptions in their personal and professional well-being. The ability to process and utilize the effects of the Internet and digital technologies constructively can be described as digital literacy. Therefore, the development of digital competencies should be considered a key element of modern education, ensuring that individuals can smoothly transition into the role of digital natives. This reality highlights the need for analytical research into the negative social and psychological impacts associated with the functioning of the Internet. One of the most influential factors in the lives of adolescents today is social media. The primary advantage of social networks lies in their ability to enable fast and inexpensive global communication. As their name suggests, their core purpose is

networking connecting individuals for the purposes of communication, socialization, or the exchange of ideas and interests. Social media have also revolutionized the promotion of personal ideas and business products, which was previously financially demanding, relying on billboards and printed advertising. Today, through well-planned online strategies, ideas and products can be effectively promoted with minimal or no financial cost a practice commonly referred to as digital marketing.

In terms of educational quality, social media have had both positive and negative effects on the intellectual development of individuals. While they have expanded access to information and created new opportunities for learning, they have also facilitated the spread of false and manipulative content in the form of hoaxes and misinformation. A key question therefore arises: how can an ordinary individual resist half-truths and manipulation? The answer lies in the development of critical and analytical thinking, supported by a solid foundation of general knowledge and education. However, such individuals still represent a minority within society (Haidt, 2025, p.212). It is therefore crucial to instruct students from an early age in the skills of analysing, verifying, and interpreting the information they encounter. Failure to do so may result in the unintentional spread of falsehoods perceived as truth, thereby exacerbating misinformation and social polarization.

2.2 The Impact of Populism, Disinformation, and Digital Literacy on Educational Systems

The dissemination of mass psychosis and alarmist messages may lead to criminal offences. Moreover, false information represents a serious threat not only to social stability but also to the political domain. Politicians with a distorted moral and ethical compass can exploit social networks through sophisticated yet deceptive and emotionally charged campaigns. Although such campaigns are often effective in mobilizing voters, their promises are frequently unfeasible in practice yet remain attractive to target audiences. Consequently, educational systems should prioritize the development of analytical thinking and critical reasoning across society, fostering the ability to evaluate information objectively and resist manipulation. A growing body of research indicates that manipulative populist communication can elevate individuals to positions of power whose ineffective and poor governance lead to the economic decline of the state and a deterioration in citizens' living standards (Muller, 2016, p. 85). Populists typically seek social popularity and are therefore highly dependent on public opinion polls. Their objective is not national economic progress but rather the maintenance of personal popularity and power an inherently detrimental societal phenomenon.
In terms of educational quality, populists often target segments of the population with lower levels of education. Such individuals may lack the capacity to assess whether semi-truths and misleading information are valid, tending instead to accept them as factual. Exploiting this

cognitive vulnerability, populists substitute realistic policy solutions and strategic visions with fabricated hoaxes and conspiracy theories that, due to their simplicity and emotional appeal, attract public attention. These narratives engage the emotional rather than the rational dimension of individuals, diverting public discourse away from addressing genuine social and economic challenges. From an economic perspective, this trend represents a serious risk (Muller, 2016, p. 54). Populists frequently adjust their strategies according to public mood and survey data, deploying fiscal mechanisms such as increasing pensions and public-sector salaries to secure popularity. While such measures are well received by citizens, they impose a heavy burden on the state budget, contributing to long-term indebtedness. Therefore, a key educational priority must be the cultivation of information literacy the ability to identify, analyse, and resist hoaxes and conspiracies, and to critically evaluate mainstream information. Strengthening these competencies would enhance societal resilience against populist communication strategies.

This constitutes one of the most critical contemporary challenges for educational institutions. Their strategic objective should be to nurture a confident, well-educated society capable of working effectively with information and resisting manipulative narratives. Populists often rely on the simplicity of their communication, which appeals to broad segments of the population, especially in a digitally mediated society where much of the information exchange occurs in largely unregulated online spaces. In contrast, traditional political parties, which communicate with technical precision and intellectual depth, tend to appear less accessible or less engaging to average voters, despite offering more sustainable visions of state development. (Hansen, 2020, p. 135) When populists eventually assume governmental power, their need to fulfill certain promises frequently results in extreme fiscal burdens, further destabilizing the national economy.

The media and political pressure generated by hoaxes and conspiracy theories has become pervasive. These narratives function without self-reflection or concern for economic decline and the erosion of citizens' quality of life. Their primary focus remains the pursuit of power rather than societal well-being. Consequently, addressing disinformation and populism represents one of the most profound historical and contemporary challenges for education systems. Despite often being undervalued or underfunded compared to sectors such as infrastructure or healthcare, education holds transformative potential. Countries that have invested systematically and generously in education demonstrate long-term outcomes in the form of low unemployment, reduced crime rates, and greater resistance to disinformation.

If individuals are digitally competent, the use of social media can serve as an advantage. However, a significant proportion of adolescents are becoming dependent on digital platforms, raising the critical question: At what age should young people first engage with digital technologies? Scholars and researchers continue to debate this issue. In his influential study The Anxious Generation (2015), Jonathan Haidt suggests that the initial meaningful

contact with digital technology should occur around the age of fifteen coinciding with the start of secondary education. Parents often counter this recommendation, citing safety concerns and the necessity of children carrying mobile phones for communication. Similarly, Manfred Spitzer (2015) advocates for the same age threshold but proposes stricter supervision of online profiles and the use of basic mobile phones without access to social networks. On the other hand, it is important to acknowledge that social media can provide rapid and useful information that people once obtained primarily from television or newspapers. This access to information is faster and more cost-effective. (Haidt, 2025, p.132)

However, under the influence of social networks, social solidarity and mutual understanding among individuals are gradually declining. Material values are increasingly prioritized over traditional moral and cultural ones, while the importance of science and education is being relativized and questioned.

A notable consequence of this social shift is the rise of cyberbullying among students, which illustrates a broader erosion of interpersonal respect. From a political science perspective, the internet represents a symbol of democracy and freedom of expression. Nevertheless, unlike books and newspapers, it is not regulated in terms of truthfulness or verifiability. The internet contains a vast amount of valuable academic and professional information that was once difficult to access. However, because it is an open and largely unregulated space, it also contains a significant number of falsehoods, conspiracy theories, and manipulative content. A large segment of society in many countries tends to perceive such information as truthful, thereby losing objectivity and critical reasoning. Consequently, ordinary individuals often struggle to verify or assess the credibility of online information (Hari, 2023, p. 182). This can result in a phenomenon in which people begin to lose trust in their everyday reality, perceiving deception or hidden motives behind ordinary social events. Such attitudes can give rise to mass psychosis and a growing level of social aggression among members of society.

One possible solution lies in systematically improving information literacy across the population. This should be implemented not only within formal education systems but also through lifelong learning initiatives, equipping both students and adults with the ability to filter and verify the accuracy of information. Another key approach is to strengthen the general knowledge base of society, since research consistently shows that well-educated individuals are less vulnerable to misinformation and deliberate fabrications. A professional analysis of the impact of internet use reveals that, when used effectively and responsibly, the internet can significantly facilitate many aspects of everyday life (Carr, 2020, p. 57). It can, for example, support the systematic preparation of scholarly texts and the retrieval of diverse academic sources. However, for adolescents, the effects can be profoundly negative. Many young people use the internet not to seek quality information but rather to play games or engage in unproductive online activities.

Such behaviour can have detrimental long-term consequences on the emotional and social development of adolescents, particularly in terms of their capacity for empathy toward

others. Although these young individuals may not immediately perceive such habits as problematic, the transition to adulthood may bring psychological difficulties such as depression or anxiety, often stemming from a lack of genuine social contact (Hansen, 2020, p. 135). From a developmental perspective, it is a well-established fact that human beings are inherently social creatures. Even though some adolescents may temporarily convince themselves that they can live in isolation, the reality grounded in evolutionary biology is that humans are fundamentally social beings. Consequently, after a certain period, individuals naturally seek out interaction and connection with others.

From a professional perspective, it is also possible to examine the global impact of digital technologies on reducing economic inequalities. Overall, it appears that digital technologies have not delivered the anticipated improvements in human intelligence or educational outcomes, especially among economically disadvantaged populations. Several scholars have identified the emergence of non-substance addictions, such as online gaming and social media dependency, as negative consequences of the digital era. These factors can deepen existing socioeconomic disparities between wealthier and poorer social classes. As a result of these trends, societies around the world are increasingly facing a condition known as the digital divide a state characterized by unequal access to technology, disparities in digital skills, and differences in the capacity to benefit from technological advancements.

2.3 The Current State of Digitalisation and Education

Contemporary society is undergoing a permanent digital revolution. Unlike past revolutions, such as the Industrial Revolution, which unfolded gradually over hundreds of years, the current digital revolution brings transformative discoveries almost every year. This rapid pace creates significant pressure on the average individual to adapt to the constant influx of changes. Younger generations, namely Generation Z and Generation Alpha often referred to as digital natives can absorb these changes relatively quickly, as they grow up surrounded by digital technologies and use them naturally in nearly all aspects of their daily lives. From the perspective of adaptation to technological development, they possess an undeniable advantage. However, an important question arises: are these generations truly more educated and psychologically resilient? Research findings suggest otherwise. Studies, such as those by Jonathan Haidt (2025), indicate that these generations face a greater prevalence of psychological problems. Therefore, it is crucial to ask what the underlying causes of this negative trend are and how it might be addressed. The issue is complex and multifaceted, involving several interrelated factors. Numerous scientists and experts are currently engaged in analysing and attempting to resolve these challenges through their academic studies.

In assessing the state of research on the impact of digital technologies on education, it is evident that, in Slovakia, this topic has not yet been systematically explored by any specific scholar or institution. However, internationally, several prominent theories and scholarly works stand out in this field. Among the most influential are Manfred Spitzer's Digital Dementia, Thomas Kersting's Disengage: Reclaim Your Life in the Digital Age, Anders Hansen's

The Instabrain, Jonathan Haidt's The Anxious Generation, and Nicholas Carr's The Shallows: What the Internet Is Doing to Our Brains. Within the Czech Republic, the topic has been addressed by authors such as Jan Martin Stránský in The Rise and Fall of the Human Mind and Jozef Vlčej in Digitalisation of the Mind. Further discussions are offered by Domborovská and Šidlichovská in their publication: Information Detox, which critically examines the psychological and social consequences of excessive digital engagement.

3 Digitalisation of Education

Education represents one of the most important processes within society, with the completion of its fundamental stage being compulsory. It accompanies human life from early childhood through primary, secondary, and possibly higher education. It is undeniably a key component in shaping an individual's personality and intellectual development. Educational processes are currently experiencing a range of modernisation initiatives that are dynamically reshaping their character and significance. Among the most influential factors are digital tools and artificial intelligence, which highlight the challenges of modernisation and digitalisation in education, particularly regarding the integration and effective use of digital technologies within teaching and learning processes (Haidt, 2025, p.132). From a technical perspective, the use of digital technologies as a supplementary tool in teaching is generally viewed positively, as it has accelerated access to essential information. Their application fosters modernisation and contributes to improving the qualitative level of knowledge, aligning it with the practical competencies required in today's labour market.

The main goal of a digitalisation strategy in education should be to enhance the general level of students' knowledge and literacy. This goal reflects a contemporary necessity arising from broader developmental trends in society. However, it is equally important to analyse both the positive and negative aspects of introducing digital technologies into education. The general educational strategy increasingly emphasizes the implementation of digital tools as a symbol of modernisation and progress. Yet, it is necessary to note that such processes are not inherently positive (Carr, 2020, p. 122). The integration of digital aids into teaching should be gradual, emphasizing their effective and meaningful implementation in the educational process. Simultaneously, it is essential to carefully evaluate the advantages and disadvantages of this implementation to ensure that the digitalisation of education does not become counterproductive leading to the demotivation of teachers or students. Such an outcome could result in the devaluation of educational quality.

A crucial premise must not be overlooked: while the introduction of digital technologies into education may be extensive, the teacher must remain at the centre of the educational and formative process. When effectively utilized, digital technologies can greatly enhance the quality of instruction by supporting lesson preparation and classroom delivery. However, a

potential risk emerges when teachers begin to feel that more investment is directed toward digital technologies than toward their professional development, training, or financial recognition. This perception may lead teachers to believe that their role within the educational system has become secondary. Practical testimonies from educators suggest that some teachers feel that, for governmental authorities, digital technologies in education are considered more important than the teachers themselves.
Consequently, they may begin to feel undervalued or even discriminated against. Certain groups of teachers perceive that more funds are invested in technology than in improving the material infrastructure of schools or in securing adequate compensation for teachers (Stránský, 2024, p.174). This situation sometimes results in a narrow and disillusioned outlook, where teachers perceive that while the state is willing to invest heavily in modern technologies, financial resources for even modest salary increases are scarce. Such perceptions can lead to demoralization and a general decline in the competitiveness of national education systems.

It can therefore be concluded that the implementation of digital technologies into educational processes is undeniably important and represents a hallmark of modernisation trends. Nonetheless, in practical application, it is essential to uphold the teacher's dignified and motivating role as the primary and indispensable element of the student's educational and formative experience. This leads us to a specific question: do digital technologies in teaching genuinely contribute to improving students' knowledge? The answer to this question is neither straightforward nor simple. Based on Manfred Spitzer's Digital Dementia theory, it may rather be argued that digital tools have a negative impact on society's overall level of knowledge. Particularly, among today's adolescents, there is frequent mention of a declining capacity for critical thinking and general information literacy often linked to digital dependency. Students spend excessive time on social media and similar platforms, dedicating minimal time to study and class preparation.
Consequently, this leads to academic underperformance and, in some cases, a deterioration of school results (Spitzer, 2018, p. 89). A concrete example can be found in mathematics test outcomes among primary school pupils, where many students increasingly fall below the European average. When digital technologies are misused, they can become a negative factor rather than a supportive one. Over the long term, this trend may contribute to a qualitative decline in overall educational attainment and intellectual competence.

4 Education and Artificial Intelligence

In analysing the effects of current social and technological influences on education, academic discourse increasingly focuses on the potential decline in the quality and scope of students' knowledge and competencies. Regarding the causes and specific agents behind this phenomenon, the professional community is divided into two main camps. Some scholars

advocate for the use and broad integration of digital technologies in teaching, whereas others attribute the decline in educational quality directly to their influence. Consequently, it is essential to examine these factors in greater depth. Artificial intelligence (AI) is gaining an ever-increasing role not only in everyday human life but also within educational processes (Harari, 2024, p.122). AI represents a manifestation of technological modernisation and social progress. It is a digital tool capable of accelerating numerous educational processes, particularly those involving teachers and lecturers. In the past, for instance, the preparation of educational materials could take several weeks. Today, with the aid of AI, the same task can be accomplished within days, thereby contributing to qualitative improvements in instructional content and delivery.

When comparing the preparation and acquisition of teaching materials using traditional internet searches versus AI systems, we can observe several qualitative differences. In the past, searching for information online required manually reviewing numerous articles and summarizing the findings. This was already a major improvement compared to the pre-digital era, when research demanded extensive time spent in libraries extracting information from printed books. Today, however, a teacher can simply prompt AI with a detailed request such as “Provide a comprehensive overview of India’s political and economic system.” AI will generate a systematically organized, multi-page text, which the user can then verify for accuracy and supplement with specific details (Stránský, 2024, p.174). The result is a complete educational resource produced in a single day—a process that would previously have taken weeks. Hence, AI can serve as an effective tool for enhancing the professional quality of teaching.

On the other hand, it is crucial to consider the influence of AI on students’ learning processes. From a positive perspective, if students know how to use AI efficiently, they can, like teachers, access high-quality academic information, thereby broadening their general knowledge base and advancing their intellectual capacity. Competence in AI usage may become an essential digital skill, enhancing students’ employability in the labour market. However, a significant risk emerges when students use AI primarily to simplify their studies for instance, by generating required texts for coursework or final theses without engaging in genuine cognitive effort. Many students thus take AI-generated material, present it as their own, and bypass deeper analysis and reflection. This behaviour represents a dangerous phenomenon that can be described as digital complacency. This tendency is rooted in the biological nature of humans, who generally prefer fewer demanding options when given a choice, even at the expense of long-term intellectual or professional growth. Consequently, many students fail to revise, supplement, or critically engage with AI-generated texts, thus neglecting the activation of critical thinking processes that are vital for cognitive and professional development (Harari, 2024, p.184).

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However, when AI is used as a supportive tool or advisor in academic work assisting with research, structuring arguments, or identifying relevant literature it can significantly enhance both efficiency and quality. The resulting output may be an innovative, authentic, and well-supported academic work enriched with relevant and up-to-date data.
When working with digital technologies and artificial intelligence, ethical and moral considerations should also play a fundamental role. It should be seen as ethically inappropriate to use AI to produce academic or professional work without personal revision, correction, or intellectual contribution, while presenting the result as one's own. In practice, a portion of individuals indeed use AI as an supplementary tool to improve their work and would not claim its output as their own intellectual product. However, the majority tend to replace moral responsibility with convenience and a form of ethical dishonesty, justifying it through time efficiency. This tendency stems from the innate human inclination to seek ease rather than exert effort toward a high-quality outcome. The ultimate consequence may be an extreme decline in critical thinking and in the complexity of neural networks within the brain. Among researchers and academic experts, there is ongoing debate about the reliability and informational quality of data produced by AI. At the outset, it must be acknowledged that AI systems are still in an early and dynamically evolving stage of development. Some experts point out that the data and outputs generated by AI are not always accurate or verifiable.

From a systematic information-processing perspective, this represents a certain imperfection. Yet, from a pedagogical viewpoint, this imperfection may paradoxically have positive effects. AI's occasional production of inaccurate or distorted information something even noted by industry leaders such as Sam Altman, CEO of OpenAI can serve as a catalyst for users to engage in critical verification and analysis of the information provided. In this way, users are encouraged to cross-check data across multiple sources, expanding their general knowledge and improving the qualitative depth of their intellectual output. Conversely, if users accept AI-generated information uncritically and use it as the result of their work a natural shortcut for many individuals the outcome is likely to be poor-quality, derivative output subject to academic disapproval and possible sanctions.

5 Digital Comfort

Contemporary global society is evolving at an extremely dynamic pace. In the past, revolutionary societal transformations unfolded over centuries. The first such major transformation was the Neolithic Revolution, which occurred approximately three thousand years ago, marking the transition of humans from hunters to gatherers. The next turning point came with the Industrial Revolution at the beginning of the 19th century, which fundamentally reshaped human life. Between these two revolutions lay a span of more than two thousand years. The subsequent Information Revolution, associated with the advent of the Internet at the end of the 20th century, occurred roughly 150 years after the Industrial Revolution,

significantly accelerating social modernisation. The most recent transformation the Digital Revolution emerged only about a decade ago, closely tied to the rapid rise of artificial intelligence (Carr, 2020, p. 85). The temporal gap between the third and fourth revolutions has thus narrowed dramatically from roughly a thousand years in the past to merely ten years today. This evidence an unprecedented acceleration of social and technological development. We now live in a state of permanent technological revolution, which places immense pressure on individuals to continuously monitor and adapt to new digital and technological trends. These trends are profoundly reshaping not only the quality and nature of everyday life but also the meaning and structure of education in digital society.

A failure to keep pace with technological progress, even briefly, may lead to the emergence of digital lag, and in extreme cases, to the digital divide, which already exists today between the youngest and oldest members of society. The contemporary young generation often referred to as digital natives grows up immersed in digital environments and can naturally adopt and utilize new technologies for personal and educational advancement. However, researchers have also warned about the negative psychological consequences of digital technologies on adolescents' mental health (Hari, 2023, p. 152). According to several scientific studies, notably those of the American psychologist Jonathan Haidt and his theory presented in The Anxious Generation (2024), the introduction of social media to smartphones around 2010 coincided with a sharp increase in depression and anxiety among adolescents. The result is a marked deterioration in the mental well-being of the younger generation.

From a historical perspective on the influence of digital technologies, earlier generations—namely the Baby Boomers (1946–1964) and Generation X (1965–1979) are often described metaphorically as "digital Neanderthals." These individuals first encountered digital technologies in middle or later adulthood. Although they have gradually adapted to the digital transformation of society, they are generally unable to keep pace with its ongoing acceleration. Their use of digital tools tends to be limited to basic, practical functions necessary for daily life. Consequently, these generations often become targets of digital fraud due to their limited technological proficiency.

This raises an important pedagogical question: How should students use digital technologies effectively so that these tools enrich rather than diminish their intellectual development? In education, digital technologies should be employed to access otherwise unavailable information resources that are not easily searchable yet are valuable for expanding and deepening knowledge within a specific learning context.
Conversely, when digital technologies are used purely for purposeless entertainment or excessive leisure what psychologists describe as procrastination the effects can be harmful. Passive scrolling through social media, for example, leads to the depletion of dopamine, the neurotransmitter responsible for feelings of pleasure and satisfaction. When dopamine levels

are exhausted through overstimulation, individuals may experience emotional numbness and even depressive moods. This phenomenon contributes to what can be described as a state of digital comfort, in which cognitive effort, intellectual curiosity, and neural activity decline as the brain is no longer challenged. A striking example of this phenomenon is provided by Manfred Spitzer in his research on the intellectual abilities of London taxi drivers (Spitzer, 2018, p. 144). The study compared two groups: one that relied on traditional maps and memory to navigate, and another that depended solely on GPS technology. The findings revealed that the drivers who did not use GPS exhibited significantly greater intellectual and logical brain capacity than those who relied exclusively on navigation systems.

6 Cyberbullying

Digital technologies have brought numerous positive benefits, significantly improving and modernising both the quality of human life and the educational process. However, it is equally important to examine their negative aspects, one of the most pressing being cyberbullying, which increasingly disrupts the educational environment and demands targeted strategies for effective intervention. This phenomenon has become deeply rooted in school settings over the past two decades. Traditionally, schools have had to deal primarily with physical bullying, which is characterized by one individual asserting dominance over another where a stronger person targets someone weaker to compensate for personal insecurities or frustrations (Stránský, 2024, p.174). This form of bullying is visible, tangible, and therefore easier to detect and address. Today, however, the rapid expansion of the Internet has given rise to a new, more complex challenge cyberbullying, which is largely invisible, concealed, and difficult to trace. This very hidden nature makes it appealing to many perpetrators. Cyberbullying arises from several motivations and psychological mechanisms.

For some individuals, the Internet represents a powerful tool of control, offering the illusion of impunity through anonymity. Offenders hide behind false usernames, fake profiles, and fabricated identities. In this virtual environment, they often exhibit uncharacteristically bold or aggressive behaviour, driven by the belief that they will not face any real-world consequences for their actions. From a psychological perspective, this behaviour reflects an alibistic and compensatory pattern a way for individuals who feel unfulfilled, undervalued, or unsuccessful in real life to gain a sense of control and superiority online. These individuals often use the digital space to attack others emotionally, focusing on their weaknesses and intentionally undermining their mental well-being. As Kersting (2023, p. 78) notes, this leads to a paradoxical situation: individuals who appear confident and hostile online often display cowardice and insecurity in real-world interactions, remaining silent when faced with direct, face-to-face confrontation.

Empirical research supports this analysis. Studies show that individuals tend to lie, exaggerate, or act dishonestly much more frequently in online environments than in real life. The perceived anonymity of digital spaces weakens moral restraints and social accountability, often leading to increased aggression, particularly among adolescents. In earlier times, social control and fear of reputational damage prevented many potential bullies from acting out. Today, the online realm provides an illusion of safety and invisibility that encourages psychological manipulation and harassment (Harari, 2024, p.184). Cyberbullying therefore constitutes a form of psychological violence, designed to exert emotional pressure and distress upon a targeted individual. Its aim is often to provoke anger, fear, and helplessness in the victim. According to Manfred Spitzer (2018, p. 144), sustained exposure to such harassment can lead to serious psychosomatic and psychological symptoms, including insomnia, headaches, stomach pain, loss of appetite, self-harm, and in severe cases, clinical depression or suicidal ideation.

Conclusion

Digital technologies today permeate nearly all aspects of human existence, shaping the way we live, communicate, and learn. Their influence is inherently ambivalent: on one hand, they provide powerful tools that can significantly enhance the efficiency and quality of the educational process; on the other hand, excessive or inappropriate use may lead to reduced attention, loss of critical thinking, or even digital dependency. Education thus enters a new phase in which it is essential to find a balance between technological progress and the preservation of pedagogical authenticity and human integrity. Education remains a fundamental pillar of societal development and modernisation. Although the Internet and the digital environment have introduced numerous alternative perspectives on the meaning and purpose of learning, both research and practice consistently confirm that education continues to have a profound impact on individual and collective well-being. Systematically educated individuals tend to display higher social stability, lower levels of criminal behaviour, greater self-reflection, and an enhanced ability to solve problems with composure and perspective.

In this context, digital technologies should not be perceived as an end in themselves but rather as a means for the advancement of knowledge and the cultivation of thought. Their effective and sensitive integration into educational practice can significantly contribute to building a knowledge-based, ethical, and innovative society. Finally, it is worth recalling the timeless words of the Greek philosopher Socrates: “I know that I know nothing.” This statement continues to serve as a lasting reminder of intellectual humility and an enduring call for continuous self-improvement, critical inquiry, and openness to new knowledge. Such an attitude represents a crucial foundation for sustainable development and societal progress in the digital era.

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