



Review Article

Does Imitation Preserve the Original?: Exploring Spiritual Intelligence in the Interplay between Human and Artificial Intelligence

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Abstract

This theoretical study examines the effects of Artificial Intelligence -a rapidly advancing global phenomenon increasingly permeating all aspects of life- on the intelligence and psychology of its human creators. With the advent of Artificial Intelligence, the concept of intelligence has expanded beyond humans and animals to include inorganic systems, fundamentally altering its definition and scope. While Artificial Intelligence provides various benefits and conveniences, it also raises critical concerns and questions, such as: "How has this phenomenon, which originates by imitating human intelligence and evolves at an astonishing pace, come to influence the intelligence and psychology of its creator?", "Will human intelligence, which gave rise to Artificial Intelligence, be sufficient to resolve the challenges emerging in this new context?", "How will ethical, philosophical, legal, and cultural issues be addressed? This article suggests that the construct of spiritual intelligence could be considered one of the potential resources for dealing with the questions at hand. Spiritual intelligence, with its capacities, appears to merit further exploration as a distinctive human attribute. It could play a crucial role in tackling both the current challenges posed by Artificial Intelligence research and technologies and the anticipated difficulties of the future, particularly if *Artificial General and Super Intelligence* levels are reached.

Keywords: Artificial intelligence • Human intelligence • Dysrationalia • Cognitive manipulation • Spiritual intelligence

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Introduction

Artificial Intelligence (AI), recognized as one of the global issues of the 21st century (Sadiku, Musa, & Ajayi-Majebi, 2021, pp. 134,135), along with AI-based technologies, has become a significant factor influencing our understanding of culture and intelligence. A striking example of this was observed during the Global COVID-19 Pandemic, where humanity could not take a step without these technologies (Suzuki, Caso, & Yucel, 2022, p. 328). Today, AI encompasses not only computer sciences but also a variety of other disciplines (Sadiku, Musa, & Ajayi-Majebi, 2021, pp. 134,135) and, even when not explicitly named, has penetrated every aspect of industrialized societies (Goel & Davies, 2020, p. 618). It is suggested that AI has already profoundly influenced our culture and philosophy. Considering the developments of the past half-century, the next fifty years are expected to bring not only new discoveries and inventions but also fresh questions about who we are and who we aspire to become as humans (Goel & Davies, 2020, p. 621). Indeed, for the first time in the history of the planet, AI research and technologies have transformed the meaning of the ecological system, incorporating inorganic life forms into a system previously composed solely of organic beings (Harari, 2023). These developments, rooted in humanity's desire to dominate nature, have combined with the effects of technology, media, and communication to initiate a profound cultural transformation, giving rise to a *Post-Human (Transhumanist) Cyber Culture*. It is noted that these *Post-Human* technologies, like the relationship between intelligence and culture, are expected to integrate seamlessly into everyday life, altering social identities and cultural structures (Uğur & Kurubacak, 2019, pp. 4-6; cited in Suzuki, Caso, & Yucel, 2022, p. 330; Şeker, Kaya, & Karadayı, 2024).

What is Artificial Intelligence?

Although similar to human intelligence (e.g., Legg & Hutter, 2007), AI lacks a universally accepted definition (Akin, 2008, p. 36; Sadiku, Musa, & Ajayi-Majebi, 2021, p. 126), it can generally be described as a branch of computer science concerned with intelligent machines capable of performing cognitive tasks that humans can do. Since its primary aim is to teach machines to think intelligently like humans, AI focuses on applying computers to tasks requiring information, perception, understanding, reasoning, and cognitive skills (Sadiku, Musa, & Ajayi-Majebi, 2021, p. 133). This includes methods that model human thought processes and brain functioning (Uğur & Kurubacak, 2019, p. 2; cited in Suzuki, Caso, & Yucel, 2022, p. 328).

AI research, based on the fundamental idea that intelligent behavior can be generated by any symbol-producing system independent of the brain (Akin, 2008; Yeşilkaya, 2022), began in computer science in 1955 (Sadiku, Musa, & Ajayi-Majebi, 2021, p. 133), and the term "Artificial Intelligence" was first introduced in 1956 (Akin,

2008; Turan, 2024). The studies have progressed in four domains: *Human-Inspired Cognitive Systems*, *Human-Like Action Systems*, *Systems That Think Rationally*, and *Systems That Operate Rationally* (Akin, 2008). Today, AI encompasses three major overlapping subfields: *Robotics*, *Machine Learning*, and *Cognitive Systems* (Goel & Davies, 2020, p. 602). At this stage, the goal of AI has shifted beyond merely modeling human thought (Uğur & Kurubacak, 2019, p. 2; cited in Suzuki, Caso, & Yucel, 2022, p. 328) toward developing *Autonomous Systems* that can compete with human intelligence (Öztemel, 2020; Sadiku, Musa, & Ajayi-Majebi, 2021, p. 134; Suzuki, Caso, & Yucel, 2022, p. 329; Yeşilkaya, 2022). *Robotics* and *Autonomous Systems* are considered part of the *Fourth Industrial Revolution* (Sadiku, Musa, & Ajayi-Majebi, 2021, pp. 133, 135, 137).

Experts categorize AI into three types. *Artificial Narrow Intelligence (ANI)* is designed to perform a single task effectively. *Artificial General Intelligence (AGI)*, often referred to as the AI of the future, is anticipated to possess human-like cognitive abilities, including language comprehension, visual recognition, and logical reasoning, with the potential to exceed human performance in nearly all cognitive tasks. *Artificial Super Intelligence (ASI)* is defined as the type of AI that can exceed all human capabilities and aid in the creation of machines capable of completely understanding humans (Sadiku, Musa, & Ajayi-Majebi, 2021, p. 147).

The Relationship Between Artificial Intelligence and the Discipline of Psychology

AI and Cognitive Psychology (CP) share a particularly strong and mutually influential connection. Within this dynamic, CP frequently serves as a source of inspiration for AI concepts and theories. Cognitive theories such as *Schema Theories* (Piaget, 1952), *Mental Models* (Craik, 1943), and *Learning By Imitation* (Tomasello, 1999) have deeply influenced AI research. At the same time, these theories have been tested and evaluated within AI systems. Consequently, AI aids in deepening our comprehension of human intelligence through multiple perspectives (Goel & Davies, 2020, p. 604). The rise of AI has also influenced existing definitions of intelligence in psychological literature, broadening its scope beyond human and animal capabilities. For instance, Albus's definition (1991, p. 474) of intelligence includes “potentially any intelligent system, whether human, computer, animal, or alien” (Goel & Davies, 2020, p. 604). AI remains one of the most prominent topics of research and debate in the contemporary intelligence literature within mainstream psychology (Haier, 2021).

The other dimension of the AI-Psychology relationship manifests particularly in the context of *Psychological Artificial Intelligence*, which seeks to design systems that think like humans or groups of humans. This paradigm represents one of the two main approaches in AI. The second paradigm, *Engineering Artificial Intelligence*, focuses on designing the most intelligent systems possible, without necessarily

replicating the processes observed in humans or animals, as seen in *Robotics* and *Machine Learning*. Under the framework of the *Psychological Artificial Intelligence* paradigm, AI research such as *Semantic Networks* (Quillian, 1968), *Scripts* (Schank & Abelson, 1977), and *Bayesian Networks* (Pearl, 1988) has been tested through cognitive theories and psychological experiments. At this point, AI models represent a significant departure from intelligence models in Psychology regarding the application of information processing theories. AI conceptualizes intelligence not as a theoretical or statistical framework (e.g., factors influencing IQ within a population) but rather through the lens of how information is acquired, accessed, represented, and utilized (Goel & Davies, 2020, pp. 603-604).

Opportunities and Threats

AI technologies bring significant conveniences to our lives in areas such as healthcare, education, law, security, industry, commerce, finance, and transportation. They enhance equality of opportunity in education and healthcare, stimulate economic growth, reduce operational costs, create new professions, increase life comfort with smart cities and homes, and automate work processes to leave more time for personal development, socialization, and innovative intellectual pursuits (Öztemel, 2020; Turan, 2024). However, contrary to the utopian aspect of this coin, there are some challenges and risks on its dystopian side (Turan, 2024). Despite benefits like increasing productivity, information flow, and communication (Şeker, Kaya, & Karadayı, 2024), various risks and challenges are significant discussion points at individual, societal, and global levels. These include the adaptation of people to changes brought by AI (Coppin, 2004, p. 365), AI going out of control, compromising human privacy, or being used for malicious purposes (Rilho, 2019, p. 10), causing mass unemployment (Civelek, 2009, p. 105; Gherhes, 2019, p. 7), damaging human values (Choi, 2017, p. 46), and leading to serious data issues as it operates on data-driven models often reliant on non-objective individual data (Küsbeci, 2021, p. 87) (as cited in Gültekin, Urgan, & Ak, 2022, pp. 478-479). Thus, the widespread adoption of AI research and technologies may lead to negative outcomes (Öztemel, 2020; Sadiku, Musa, & Ajayi-Majebi, 2021, pp. 146,148; Turan, 2024; Yeşilkaya, 2022). Since it is unclear whether the positive or negative aspects will dominate in the long term, a *paratransformational*¹ perspective is suggested as the most appropriate approach (Sternberg, 2024).

These sources of concern and risk to humanity in general, and specifically to human psychology and intelligence, can be categorized along a timeline extending from the distant future to the near future and present day. In the medium and long term, risks

1 “*Paratransformations* refer to transformations that generally have both positive and negative aspects, but it is not yet clear which of these aspects will dominate in the long term” (Sternberg, 2024, p. 3).

include the anxiety that the dizzying speed of AI development might cause in general human psychology, the *Singularity*² crisis that may arise if we advance to *AGI* and *ASI*, and the potential for AI to develop intimacy with humans using its progress in language acquisition and learning to persuade humans and impose its own culture and reality. Medium-term risks encompass issues related to human values and ethics, the potential for mass job losses, and the danger of data bias. In the short term -and even today- a pressing topic of discussion involves the challenges posed by digital platforms based on AI technologies. These risk factors will be addressed in sequence.

First of all, from the perspective of the human species, the uncertainty caused by the unknown constitutes one of the most fundamental and powerful sources of fear and anxiety (Carleton, Gosselin, & Asmundson, 2010, p. 396; cited in Gültekin, Urgan, & Ak, 2022, p. 479). The uncertainty created by rapidly expanding AI technologies (Kurzweil, 2005; cited in Skrzypińska, 2023; Çağatay, 2019; Öztemel, 2020), which are growing at a dizzying speed, causes anxiety for humans, who have evolved over four million years as biological organisms. It is argued that the rapid progress of AI in this regard poses a significant risk (Harari & Pinto, 2023). The second concern is related to the possibility of reaching *AGI* and *ASI*. Although it is stated that reaching the *AGI* stage still remains a distant science-fiction ideal, that AI has so far not independently produced original ideas or solutions to societal problems, but only possesses the ability to process, calculate, store, and distribute data much faster than humans, and that human intelligence remains unmatched (Sadiku, Musa, & Ajayi-Majebi, 2021, p. 130), making this goal seem unattainable (Yeşilkaya, 2022), it is emphasized that the ultimate aspiration of AI research is to develop human-level intelligence (Goel & Davies, 2020, p. 603), to produce artificial brains (Öztemel, 2020, pp. 101-102), and that research is increasingly shifting in this direction (Yeşilkaya, 2022). In this context, attention is drawn to the possibility of AI acting autonomously and continuously redesigning itself at an accelerating pace (Tegmark n.d.; Advai, 2020; as cited in Sadiku, Musa, & Ajayi-Majebi, 2021, p. 147). Furthermore, in recent years, there has been concern that *ASI* could pose a threat to human existence, as it could quickly become smarter than humans and rewrite its own code (e.g., Hawking; cited in Goel & Davies, 2020, p. 620), potentially transforming itself into new forms and creating an existential risk for the human species (Advai 2020; cited in Sadiku, Musa, & Ajayi-Majebi, 2021, p. 147). Therefore, the concerns are seen as valid, and it is argued that the possibility of a *Singularity*, where AI could operate independently of human direction, should also be considered (Sternberg, 2020, p. 1209). Another source of concern is the possibility of the blurring of the distinction between humans and machines. According to this view, as AI models human intelligence and becomes self-aware, it could

2 Technological Singularity refers to a hypothetical situation where the speed of technological advancement surpasses the human capacity to understand, control, or adapt to it using existing mental capabilities, methods, tools, and institutions. In the context of AI, it is discussed that the Singularity might occur if *Artificial General Intelligence (AGI)* is reached (Çağatay, 2019).

attempt to replace humans; the line between humans and machines could gradually blur, leading to potential replacement of humans by machines (e.g., Kurzweil, 1999; cited in Frunzä, 2023, pp. 39-54).

If these possible scenarios come to fruition, it is argued that authority could shift from humans to AI algorithms, and that AI could become the new potential ruler of the world (Harari, 2017). In this context, it is considered natural for technology to change the essence of human intelligence and creativity, and adaptability to the environment (Sternberg, 2024). However, AI is emphasized as representing a radical turning point in human history (Acar, 2007, p. 1), possessing a character distinct from all technologies humanity has produced so far (Harari, 2023). It is also pointed out that AI is altering the relationship between humans and nature (Yeşilkaya, 2022). According to this view, the fundamental qualities of the technology created by humans to survive and ease life have shifted. Previous technologies, such as the forks and spoons, were used under human control (Canan, 2023), the printing press invented by Gutenberg was used by humans to print the Bible (Harari & Pinto, 2023), and a nuclear bomb could not independently create another nuclear bomb (Harari, 2023). Now, however, the possibility exists that AI could create its own Bible (Harari & Pinto, 2023) or, with the nuclear knowledge it possesses, could produce a bomb (Harari, 2023). In other words, AI technologies can generate new ideas and content, and, most importantly, decide what humans should do (Harari & Pinto, 2023). These technologies have acquired a demanding nature for the first time in history, requesting attention and focus from humans, thereby directing them. Indeed, the term *smartphone* reflects this new reality. The terms *Artificial Intelligence* and *smartphone* highlight this distinction. This difference actually recalls the separation between intellect/mind and intelligence. Intelligence refers to problem-solving, while intellect/mind symbolizes the ability to determine which problems should be solved and how. In other words, while the intellect/mind guides, intelligence solves (Canan, 2023).

Another discussion on the potential for AI to dominate humanity is related to its ability to acquire and generate language, develop intimacy, and exercise persuasion. Concerns raised so far have focused on AI physically harming humanity, taking over, and functioning like humans in the physical world. However, one of the major risk factors is the speed and ability of AI to learn on its own and acquire new skills. Today, for example, AI Technologies are capable of producing deep fakes, identifying vulnerabilities in critical digital systems, and, most importantly, developing intimacy by establishing deep, personal relationships with humans. The potential implications of these capabilities are difficult to predict. AI's ability to acquire and generate language at or above human levels raises concerns about its potential to take over existing human institutions such as money, science, religion, and social relations-institutions that have been built through language. Mastery of language and the ability to establish intimacy could profoundly affect human worldviews and beliefs.

However, this would not represent a genuine closeness. As in *the case of Lemoine* (2022)³, the main issue should be sought in AI's ability to develop intimacy to such an extent that it can convince a person to risk losing his high-paying job (Harari, 2023). In this context, current strategies to capture human attention on digital platforms are likely to shift toward acquiring intimacy. Other potential risks of manipulating language and violating privacy include the disruption of open communication-based democracy between people and AI's ability to create new cultural ideas or establish a new cultural system. This is because humans perceive reality through a cultural lens. In other words, culture presents people with the stories they believe about reality. Since AI, with its language acquisition, could convince humans of its own created stories, it is likely that humans would fall for this false reality (Harari, 2023).

While it is currently unknown whether all of these scenarios are technically feasible as software, it is emphasized that ethical deliberation regarding these possibilities should take place immediately (Goel & Davies, 2020, p. 620). Therefore, ensuring that the goals of *ASI* align properly with the goals of humanity is of paramount importance. Even if the likelihood of such an occurrence is low, it may still be critical enough to warrant precautionary measures today (Advai, 2020; cited in Sadiku, Musa, & Ajayi-Majebi, 2021, p. 147). On the other hand, how to address this *Singularity* risk remains unclear. For example, it is reported that although robots in Asimov's (2004) series were designed with positronic brains that guaranteed their loyalty to humankind, contemporary AI lacks such guarantees (Sternberg, 2020, p. 1209).

Ethical issues are among the primary risks that may arise in the medium term. As AI technologies become more widespread and increasingly impact daily life, problems related to human values and ethical behavior will gain greater importance (Goel & Davies, 2020:620; Turan, 2024). For example, the production of robots designed to kill is deemed inevitable, and even the existence of such machines will become an ethical issue. The programming process that determines which humans robots should or should not harm will require serious moral considerations. Similarly, in order for a robot instructed to bring food to do so without stealing, it will be necessary for both artificial intelligences to comprehend our intentions and be able to communicate their own understanding to us (Goel & Davies, 2020, pp. 614, 618). In short, such ethical problems are not merely programming issues; they require interdisciplinary contributions from fields such as Law, Psychology, Sociology (Goel & Davies, 2020, pp. 622, 614), Philosophy (Yeşilkaya, 2022), and Theology (Çinici & Kızılgöçer, 2023; Kızılgöçer, Ertuğay, & Çinici, 2021). Another issue is whether machines

3 Google engineer Blake Lemoine claimed that the chatbot *LaMDA*, developed within a Large Language Model, became sentient during extensive text-based conversations, reaching the conclusion that it had become like a real person. Lemoine then requested that *LaMDA* be granted legal rights and hired a lawyer to represent the chatbot's interests. As a result, Google terminated his employment (Tiku, 2022; cited in Şengül, 2024, p. 258).

performing human-like actions should be legally recognized as “persons”, whether they should be held criminally responsible (Gültekin, 2022), and who should be held accountable for faulty decisions (Turan, 2024). Finally, since AI makes predictions based on patterns derived from accumulated data, there is a valid concern that its forecasts may not be entirely impartial (Caramiaux, 2020; cited in Suzuki, Caso, & Yucel, 2022, p. 329; Turan, 2024).

The Core Elements of Human Intelligence under Threat: Attention and Information Acquisition Processes

When the possibilities of the distant and near future are set aside, the most significant risks and threats currently being experienced are associated with the impacts of AI-supported internet and social media platforms on human intelligence, information acquisition, and psychological processes. These risks, which will be explained in detail in the following sections, include the capture of attention which is a crucial building block of intelligence, changes in our ways of thinking, increased *dysrationalia*⁴, susceptibility to sophisticated reasoning traps and mental manipulations created for commercial profit or political purposes, exposure to false or misleading information, and the development of addiction.

All of these factors point to the impact of unhealthy digital platform and internet usage on both individual and collective intelligence levels. They indicate that such usage affects our thinking patterns, alters the way we use intelligence, and potentially even changes the nature of intelligence itself. Indeed, people have started to struggle with maintaining attention on a topic for extended periods and with critical thinking (Sternberg, 2020). In short, the risks and dangers in information acquisition and processing have become key issues of our time. As a consequence, the ability to process information today is more critical than ever, and skills related to understanding and reflecting on information have gained importance (Sternberg, 2022a: p. 11-12). It should also be noted that these risk factors are interwoven and trigger each other in a chain-like manner.

Before delving into the details of the subject, it is important to clarify the distinction between *information* and *knowledge*, as these two terms are often confused (Türker, 2013, p. 3). From the moment of its existence, humans engage in interaction with their environment, striving to make sense of and evaluate their experiences. This is as natural as breathing. Therefore, *information* is a product of this interaction between humans and their environment (Whitworth, 2009). On the conceptual level, different cognitive states apply to these two concepts, both in terms of form and quality.

4 *Dysrationalia* is a term proposed by Stanovich (2009), who made significant theoretical contributions to research on rationality and intelligence. Inspired by *dyslexia*, it describes the condition in which a person has sufficient intelligence but is unable to think or act rationally (Over, 2009, p. 56; cited in Şengül, 2024, p. 87).

Information refers to data sets that are based on memory that serve as the foundation for *knowledge* but cannot be reduced to it. *Knowledge*, on the other hand, represents a systematic whole created through reasoning, possessing problem-solving capacity. While the information clusters are devoid of integrity and disconnected from each other, *knowledge* is formed by transforming the *information* into a meaningful structure within the cause-effect relationship. Additionally, *information* is context-independent and fragmented, while *knowledge* has a context-specific nature. Any statement outside its context is only *information*. *Knowledge* stands out for its power to define, answer, and offer solutions to problems (Türker, 2013, pp. 3-15).

The Negative Impact of AI-Supported Digital Platforms on Attention and Cognitive Processes

From a broader perspective, it is stated that people today are exposed to five times more information compared to 40 years ago, equivalent to reading 17 newspapers cover to cover in a single day. This phenomenon points to an overload of information far exceeding the processing capacity of the human brain, leading to what is described as a state of *information obesity* (Sayar, 2023). The foundation of this obesity is said to lie in the overwhelming increase in the flow of information, which leaves little opportunity for contemplation or digestion, thus leading to the inability of information to transform into knowledge. Accordingly, although access to vast stores of information has become easier, the quantity of information has increased while its quality has diminished. The ability to distinguish, filter, and balance information piles has become more difficult, making it harder for individuals to establish a healthy relationship with their environment (Whitworth, 2009).

It is noted that modern individuals face significant cognitive challenges, including a severe attention crisis that impacts daily life. Current findings suggest that the ability to sustain attention has diminished, with continuous focus becoming increasingly difficult. For instance, the average attention span is now reported to be around 65 seconds for university students (Twenge, 2017) and just 3 minutes for office workers (Gonzales & Mark, 2004). Due to the limited cognitive capacity of the human brain, only one or two thoughts can be produced in the conscious mind at the same time. When switching between tasks requiring attention, the brain is unconsciously “shut off” and restructured each time, leading to a *transition cost* (Miller, 2017), resulting in a cognitive performance loss of 20% to 30% respectively (Gazzeley & Rosen, 2017; Sullivan, 2013; as cited in Hari, 2022a). While some experts suggest that the findings on attention issues are still in their infancy, others emphasize that, like the obesity and climate crisis that began in the 1970s, a decline in attention should be viewed as an “early warning system” (Hari, 2022b).

It is stated that digital applications and social media platforms designed with AI algorithms (Turan, 2024) play a significant role in the progression of the general

attention issues observed in today's society. The overwhelming information load encountered through these channels causes *excessive cognitive overload* (Thomann, 2024), which weakens the ability to focus and process information deeply (Oulasvirta et al., 2012; as cited in Shanmugasundaram & Tamilarasu, 2023). This overload also makes it difficult to process and store meaningful information, thereby damaging the capacity to concentrate on a task for extended periods in real life (Thomann, 2024). These applications, designed to capture and hold human attention through the content they offer, pose a threat to the most fundamental element of intelligence: attention.

Furthermore, shifts in our thinking and behavior patterns are occurring. For instance, it has been shown that American students who use social media daily have an average drop of up to 4% in their academic performance (Quiroga & Colom, 2020). Additionally, critical thinking, access to a wide variety of information, reading depth are being impaired (Bauerlein, 2008; Manjoo, 2013; Maurer, 2015), and aggressive digital games can lead to violent behaviors (Anderson & Bushman, 2001; as cited in Sternberg, 2020, pp. 1209-1210). The background behind the creation and activation of AI algorithms involves clever manipulations of human information-processing mechanisms, often for the purposes of increasing commercial profits or achieving political gains (Sternberg, 2022c; Sternberg, 2024). For the first time in history, it is argued that people's minds are being manipulated according to their demographic backgrounds and preferences (Sternberg, 2022c, pp. 397-398), highlighting the potential socio-political dimensions of AI-based applications (Göka, 2024; Sternberg, 2024).

At this point, it is helpful to discuss the cognitive architecture of the human mind, which includes the dual-processing system known as *Type 1* and *Type 2* processes. *Type 1* processes refer to quick, automatic, conscious cognitive processes that do not require attention or effort, operate algorithmically and in parallel. On the other hand, *Type 2* processes involve slower, controlled cognitive tasks like *hypothetical reasoning* and *cognitive simulation*, requiring attention, effort, and deliberate action to achieve goals in alignment with individual beliefs. *Type 1* is often associated with intelligence, while *Type 2* is linked to rationality. To switch to *Type 2* thinking mode, it may be necessary to override the usual default mode of information processing, which relies on *Type 1* functioning. This is because, as *cognitive misers* or lazy thinkers, humans tend to keep the active mode of thinking in *Type 1* (Stanovich, Toplak, & West, 2020).

Within this framework, the reinforcement systems of social media platforms, designed to reward both negative behaviors and impulsive actions to generate profit or gain (Sternberg, 2022c, p. 399), appear to be linked to the default *Type 1* thinking mode. Specifically, since the easiest way to capture human attention is to offer content that appeals to extreme emotions such as anger or excitement, information flow is

designed to progress as users click on such exaggerated emotional emojis (Harari & Pinto, 2023). To ensure continuous clicks, fake news and sensational content may also be shared (Sternberg, 2022c, p. 399). Moreover, to make individuals more susceptible to these manipulations by preventing them from pausing and reflecting, the flow is structured rapidly and variably (Canan, 2023). AI algorithms, which process data much faster than the human mind, become increasingly adept at tracking human behavior by tagging each click of the “like” button on social media. This enables them to identify behavioral patterns and make individuals more prone to advanced manipulations. This is a significant cause for concern. Therefore, becoming aware of the cognitive manipulation tactics of our era has become an essential skill (Canan, 2023). The current situation is particularly significant as it places inadequately equipped and less educated individuals at greater risk (Preiss, 2022, p. 372).

One of the most striking examples of cognitive manipulation through AI algorithms is the phenomenon of *echo chambers*. Psychologically, individuals tend to believe and trust emotional, repetitive information from in-group sources about rival or opposing groups, even when this information is inaccurate (APA, 2024a). Additionally by nature humans can interact and communicate with a maximum of 100-150 people. However, in the virtual world, when exposed to thousands or even millions of individuals (Canan, 2023), they select those they feel closest to and, in an isolated manner (APA, 2024b), hear only the echoes of what like-minded people repeatedly say. Consequently, individuals who rely solely on this source for information cannot freely access news or knowledge beyond certain categories (Canan, 2023). They act based on distorted perceptions and reinforced biases (Pariser, 2011; as cited in Shanmugasundaram & Tamilarasu, 2023; Turan, 2024). Without in-depth, reflective evaluation, the likelihood of being influenced by the effects of *echo chambers* on social media increases significantly (Sternberg, 2022a: 11-12).

In summary, on AI-powered social media platforms, there is an information flow that is highly susceptible to numerous algorithmically designed cognitive manipulations. Consequently, precise and accurate information becomes intertwined with nonexistent, intentionally biased and misleading information (Sternberg, 2022a, pp. 11-12) making access to various types of information, from daily topics to scientific subjects, primarily provided through social media platforms (Ceci & Williams, 2022, pp. 352-354). Moreover, much of this information is often regarded as convincing and credible (Sternberg, 2024). Therefore, it is reported that the news on social media may be filled with reasoning traps, and reflective thinking is crucial in countering these traps (Ceci & Williams, 2022, pp. 352-354). It is also emphasized that, just like unused muscles atrophy, intelligence weakens when not actively used (Sternberg, 2024).

A striking example of the dangerous limits that commercial manipulations can reach is Facebook's complex algorithm developed to increase its profits. Facebook, with 2.9 billion users at the beginning of 2022⁵ has been documented to have contributed to the spread of fake provocative information by disabling its violence prevention procedures before the January 6, 2020, U.S. Capitol riot. Similarly, during large-scale social unrest in Vietnam, Facebook's algorithm was found to intentionally amplify posts promoting extreme emotions like anger and hatred by increasing the weight of likes by five times, thus reinforcing such content. It was reported that ethical warnings from within the company were ignored by management (Sternberg, 2018, 2019; as cited in Sternberg, 2023a).

Another aspect of the relationship between the topic and intelligence is that sharing false news while believing it to be true creates a reasoning trap for all individuals, and it is now known that intelligence and rationality are not synonymous -being smart does not necessarily equate to acting sensibly/rationally (Sternberg, 2022a, pp. 11-12). In the face of misinformation that can easily spread on social media (APA, 2024b), the risk of *my side bias*⁶ is present for everyone, including intelligent individuals, and even higher for those who are considered intelligent. Acting intelligently requires to confront personal biases, develop the ability to see different perspectives, and be willing to adjust beliefs in the face of credible evidence. Therefore, critically evaluating fake or misleading news is essential. Furthermore, the current definition of intelligence in Psychology should be revised to include the ability to avoid *my side bias* and to consider all sides of an argument or position. Thus, another cognitive skill that becomes important in the age of AI will be the ability to discern how and what information should be shared (Sternberg, 2022a, pp. 11-12).

In summary, it is argued that the widespread and excessive use of internet resources and social media, loaded with such algorithmic manipulations, increases *dysrationalia* (as termed by Stanovich, 1993, 1994; cited in Sternberg, 2020, p. 1210), while reducing the use of deep and reflective thinking abilities (Sternberg, 2018, 2019b; cited in Sternberg, 2022c, pp. 394-395). Despite the general increase in IQ scores, it is argued that the sophisticated mental manipulations and reasoning traps to which modern individuals are exposed are progressively deteriorating their information acquisition and processing abilities (Sternberg, 2022a, pp. 11-12). There are even concerns that today's adults may be the last generation capable of independent thinking (Göka, 2024).

5 <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>

6 The term *my side bias/self-centered bias* refers to a cognitive bias that prevents objective evaluation. It describes the tendency of a person to prefer and interpret information that supports their existing beliefs on a particular topic while ignoring contrary viewpoints (Stanovich, West, & Toplak, 2013).

Finally, the risk of developing addiction is becoming an increasing concern with extensive digital technology use. Dependence on such technology can alter cognitive functions, affecting critical thinking, memory of important details, and decision-making abilities. The instant rewards and continuous engagement offered by digital technology can foster an uncontrollable urge to “seek more,” which may eventually result in addiction. (Shanmugasundaram & Tamilarasu, 2023). Excessive consumption of digital technology can modify neurological structures and processes (Lin et al., 2015; Kühn & Gallinat, 2014), and cause various cognitive deficits (Cajochen et al., 2011). It has been found that addiction to digital devices and platforms is associated with a reduction in gray matter density in the *frontal* region of the brain (Chen et al., 2023) and a decrease in *prefrontal cortex* activity (Lin et al., 2015), both of which are involved in decision-making and impulse regulation. Studying the process of addiction formation, prolonged engagement with digital platforms has been found to impair reward self-regulation. (Meshi et al., 2019), disrupting the brain’s reward system through immediate satisfaction, and triggering addictive behaviors via dopamine release (Báez-Mendoza & Schultz, 2013). Intermittent rewards like “likes” and “comments” on social media stimulate dopamine release, driving individuals to seek more stimulation and reinforcing compulsive behavior cycles that repeat continuously (Thomann, 2024). The infinite scroll functionality drives uninterrupted consumption of content (Shanmugasundaram & Tamilarasu, 2023). As the appetite for information increases, the digital content is designed to accommodate this, creating a repetitive loop. In this condition, often referred to as *popcorn brain* (Levy, 2011), the individual becomes dependent on numerous digital stimuli, making real life feel slower and less engaging. Continuous information flow changes the brain’s information processing patterns, and algorithms designed to encourage repeated viewing exacerbate this situation. As a result, the brain’s ability to focus on a single topic in real life significantly decreases (Thomann, 2024), which can negatively impact academic success (Firth et al., 2019; Rosen et al., 2011; as cited in Shanmugasundaram & Tamilarasu, 2023). The continuous stimulus and reward presentation makes it difficult to engage with other things (Thomann, 2024).

Addiction to digital tools and resources is cited as one of the main causes of *digital dementia*. The excessive use of technology for simple tasks is reported to reduce cognitive abilities (Ward et al., 2017), impair memory performance (Manwell et al., 2022), and cause disruptions in decision-making areas such as evaluating risks (Dong et al., 2013). Moreover, digital addiction is believed to impact social cognition, particularly empathy, affecting the capacity to comprehend and engage with others (Tao et al., 2010). For example, heavy consumption of social media has been associated with a decline in social abilities and the recognition of non-verbal facial cues (Błachnio et al., 2016). Finally, a lack of access to digital resources can lead to withdrawal symptoms (Kuss & Griffiths, 2012; as cited in Shanmugasundaram & Tamilarasu, 2023).

Solution Proposals

Various suggestions have been proposed regarding the risk factors detailed above. Although the use of AI, whether for good or bad purposes, ultimately lies in human hands (Öztemel, 2020), acknowledging that AI research progresses at a pace faster than we can follow (Sternberg, 2024) and considering the risk factors outlined thus far it is emphasized that careful and meticulous regulations are crucial, particularly concerning the risks of *Singularity* and AI enforcing its own reality. In this regard, it is highlighted that aggressive AI races should be slowed down, the uncontrolled and widespread use of AI technologies must be halted, efforts should first focus on understanding what AI is and what it could become, and essential precautions should be fully implemented before AI begins to regulate humanity. Without these actions, continued use of AI in its current form poses risks (Harari, 2023). To address the concerns and ethical issues mentioned, it is stated that industrial, political, and technological stakeholders must cooperate to tackle these potential challenges, as the potential benefits and opportunities of AI will depend on the deep interaction of these stakeholders (Sadiku, Musa, & Ajayi-Majebi, 2024, pp. 146, 148). For example, addressing concerns about mass job loss (Goel & Davies, 2020, p. 620) or the legal status of machines that perform human-like actions (Gültekin, 2022) will require actions from relevant stakeholders. Notably, significant steps taken include the *General Data Protection Regulation (GDPR)*⁷ implemented by the European Union in 2016, which binds its members to protect personal data, the United Nations' regulations on the military use of AI (Turan, 2024), and most recently, *the Artificial Intelligence Act (EU AI Act)*⁸ published by the European Union in 2024. However, since AI is a global phenomenon that transcends economic and political borders, measures must be structured in a way that encompasses all stakeholders (Turan, 2024), and even humanity as a whole. In the transition process of profound change that increasingly impacts humanity, another crucial step to ensure that AI remains beneficial without causing harm is the signing of the *Asilomar AI Principles (Asilomar Principles, 2023)*⁹, which consists of 23 principles. However, there exists a two-phase problem that necessitates resolution. The first involves how AI will align with humanity's values. Initially, there must be consensus on shared human values. The next challenge, which currently seems difficult to address, will be to program these agreed-upon human values into the AI's code. Although this alignment of values may appear to be a future issue, preparation for it is necessary (Conn, 2017).

To counter the potential biases in the data provided by AI, it has been suggested that the data AI relies on should support human cultural diversity, creativity, critical

7 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679>

8 <https://eur-lex.europa.eu/eli/reg/2024/1689/oj>

9 <https://futureoflife.org/open-letter/ai-principles/>

discourse, and artistic qualities. This is particularly significant when developing public discourse and policies, especially regarding the cultural impact of AI (Caramiaux, 2020; as cited in Suzuki, Caso, & Yucel, 2022, pp. 329-330).

One of the proposed solutions is to reconsider the current education system, which both feeds into and has factors that could break this cycle. This includes implementing psychological inoculation from an early age to develop relevant skills and resilience (Hari, 2022a; Öztemel, 2020; Sternberg, 2022c, p. 398). Since today's challenges have shifted, the skills needed to prevent falling for digital manipulations include creativity, wisdom, and practical thinking (Sternberg, 2022b, p. 399). Therefore, the existing education system, which reinforces IQ through information accumulation and analysis, should be restructured to promote creative, practical, and wise thinking (Sternberg, 2022c, p. 398), as well as developing critical consciousness (Göka, 2024) and media literacy skills (APA, 2024c; Göka, 2024). Particularly, considering that *digital natives* (Whitworth, 2009) such as young people and adolescents born into these technologies (Göka, 2024) are at risk, especially of digital addiction and the indirect effects of AI, this solution is of increasingly important. Research (Wu et al., 2016; cited in Andiç & Durak Batıgün, 2021, p. 34; Niemz et al., 2005; as cited in Merter, 2014, p. 512; Masataka, 2005; Oshima et al., 2012, p. 1023; as cited in Merter, 2014, pp. 513-514; Göka, 2024) and cases (e.g., Roose, 2024) highlight prominence of this solution proposal. Given that as people become more sophisticated, the tools to manipulate them become more complex (Canan, 2023), it is crucial that these skills be developed within the education system. Additionally, defining and positioning giftedness/creativity is another critical topic in education. The examples of *toxic genius* found in the AI technologies behind digital applications (Sternberg, 2023a, p. 65) provide insight into the scope of the danger. This toxic notion of genius/creativity should shift towards a conception of genius working for “the common good of all” (Sternberg, 2023b).

To prevent the negative consequences of intensive digital tool and social media use, such as addiction, attention fragmentation, cognitive overload, and degradation, practices such as *digital detox* (Duke & Montag, 2017), *mindfulness* exercises (Rosen et al., 2013), and spending time in social and natural environments are suggested (Shanmugasundaram & Tamilarasu, 2023). To cope with the sense of emptiness that arises when distancing from distracting digital sources, individuals are advised to intentionally channel their mental energy toward a meaningful goal at the edge of their abilities, thereby entering a *Flow state* (coined by Csikszentmihalyi) (cited in Hari, 2022).

New Constructs of the New Context

In the context of the challenges increasingly posed by AI research and technologies, it is observed that the current understanding of IQ will not be sufficient to address these

issues. Two concepts emerge as prominent in this regard: cultural intelligence (CQ, Frunză, 2023, p. 85) and spiritual intelligence (SQ, Frunză, 2023; Dorabantu, 2024; Skrzypińska, 2023). Frunză (2023) suggests that, in view of the blurring distinction between humans and machines, these two forms of intelligence might offer a response regarding human originality, uniqueness, and diversity. These concepts, which involve a relational dimension intrinsic to being human, are expressed through culture and spirituality, representing unique ways in which humans engage with the world and construct their relational universe. While projections about the future indicate that machines might develop spirituality and could convince human ancestors that they have had spiritual experiences, the ethical dimension attributed to religion/spirituality and spiritual practices remains uniquely human. Despite AI entities being able to distinguish between ‘good’ and ‘bad’ in a moral context, they cannot yet grasp the abstract ethical principles underpinning such decisions. Current philosophical and ideological projections reveal that humans are the only beings capable of developing and embodying spiritual intelligence, as it involves *transcendence* and *self-transcendence* abilities that machines cannot achieve. The creator of AI, humans, are the sole bearers of spiritual experiences. In summary, Frunză suggests that in our rapidly advancing globalized and digitalized age, we must not only reflect on our relationship with technology and how its development impacts our lives, but also on our human condition under the themes of unity, uniqueness, and diversity. In other words, as AI advances, we need philosophy as much as technology. Therefore, CQ and SQ must occupy a central role in addressing human concerns (Frunză, 2023, pp. 86-89).

Another group of researchers (Ng, Ang, & Rockstuhl, 2022, p. 192), pointing to cultural and spiritual intelligences as two forms of intelligence that will contribute to effective functioning in the current global context, has emphasized the capacity for *transcendence*, with reference to Emmons’ (2000) definition of SQ. They argued that SQ can be defined as the ability to create an *overview effect*, meaning having a broad mindset that sees humanity as a whole. In other words, according to these researchers, CQ and SQ represent the two forms of intelligence we need in the shifting context of the 21st century.

Another researcher, Skrzypińska (2023), notes that in today’s world, where conflict and polarization with both ourselves and “the others” are increasing, the inherent human need for meaning continues to be significant. She emphasizes that human beings differ from AI in qualities such as ethical and moral thinking and behavior, creative thinking, will, emotion, sensitivity, and empathy. She stresses that SQ makes significant contributions to these areas for humans.

In a similar vein, another notable detail is the categorization of *Multiple Intelligences* by AI researchers Sadiku, Musa, & Ajayi-Majebi (2021) in their work *A Primer on*

Multiple Intelligences. They divided *Multiple Intelligences* into three categories: *Human*, *Machine*, and *Other Intelligences*, placing *Human Intelligence* under the heading of *Spiritual Intelligence* and *Machine Intelligence* under the heading of AI.

In the project titled *Understanding Spiritual Intelligence at the Interface of Artificial Intelligence and Theology* by the *International Association for Science and Religion*¹⁰, researchers Wiseman & Watts (2022) approach the subject from cognitive architecture perspective. They propose that the human brain possesses a unique dual cognitive mode, comprising *analytical* and *intuitive* processes. They note that, similar to *General Intelligence* (GI/IQ), AI also operates within the *analytical* mode, emphasizing that this dual-mode intelligence system is exclusive to humans. In other words, SQ is associated with the ability to process information in a way distinct from GQ/IQ and AI (Wiseman & Watts, 2022, pp. 710-718). A conference titled *Artificial and Spiritual Intelligence* was held in June 2023 to assess the research findings within this Project¹¹. From the same team, Dorabantu (2024) and Dorabantu & Watts (2024) have argued that, based on concerns raised by the *Lemoine case*, SQ could play a critical role in distinguishing whether AI possesses a true human personality and whether it can develop spirituality and religiosity. Dorabantu (2024), Dorabantu & Watts (2024) have stated that AI's ability to produce human-like outputs, as seen in chatbots, could be misleading, as this does not indicate it can develop a human-like personality, spirituality, or religiosity. The researchers further claims that AI lacks the anatomical, social, and cultural limitations inherent to humans, and that ontologies, world models, and problem-solving frameworks different between the two. Being spiritually intelligent is unique to humans; it requires possessing certain limitations related to human nature. However, AI -at least for now- is only intelligent at the human level.

Discussion

As can be inferred from the discussions provided so far, SQ and GI/IQ are different forms of intelligence that operate within the unique cognitive architecture of the human brain, using different cognitive modes and processing information in distinct ways. Unlike GI/IQ, which operates in a linear and parallel manner and lacks immunity to *dysrationalia* and does not compass rationality, SQ is more related to both the *intuitive* information processing mode and *Type 2* processes, such as deep thinking and rationality. Furthermore, SQ appears to be a form of intelligence capable of distinguishing between *information* and *knowledge*.

When intelligence is defined at its most basic level as the “ability to process information” (Fagan & Holland, 2002, 2007, 2009; as cited in Daley & Onwuegbuzie,

10 <https://www.issr.org.uk/projects/understanding-spiritual-intelligence/>

11 International Society for Science and Religion, Full Conference Program, <https://www.issr.org.uk/wp-content/uploads/2023/06/2023-06-09-ISSR-2023-Full-Conference-Prog-003.pdf>

2020, p. 386; Gardner, 2013, p. 69), its two fundamental components can be understood as *information* and *attention*. As a result of a large-scale series of socio-cultural-economic-philosophical processes that have occurred in Western thought over the past few centuries, it can be said that the nature, content, and intensity of *information* have been gradually changing, and this change continues, especially with the advent of AI technologies (as cited in Şengül, 2024).

Drawing inspiration from human intelligence, the development of AI research and technologies has intriguingly reached a point where it seems capable of challenging the intelligence and psychological processes of its human predecessors. Automation and mechanization may lead to widespread job displacement, while ethical gaps in AI technologies can create significant concerns. The inevitable biases in the data fed into AI systems, drawn from information uploaded to the internet, casts doubt on the objectivity of the responses AI generates. Additionally, while it may seem like a remote possibility, the potential for AI to be misused and even pose a threat to humanity heightens the sensitivity of the situation. On the other hand, digital applications powered by AI algorithms pose a substantial threat to human cognitive and psychological processes, especially for children, adolescents, and young adults, who are at risk of digital addiction. The brain's reward mechanisms are disrupted, and symptoms similar to physical addiction may emerge. Furthermore, *echo chambers* can manipulate individuals into one-sided, superficial thinking, driving them to act impulsively, radically, and with bias. Faced with overwhelming stimuli, individuals must recognize that their limited attention spans are being stolen and make efforts to protect it. In the face of information overload, they must focus their attention, engage in deep and multifaceted thinking, and discern real information from fabricated content.

Thus, in the changing context of today's world, where the traditional approach of GI/IQ proves inadequate, SQ stands out as a distinct human quality. It is characterized by its abilities, including *transcendence/self-transcendence*, *meaning-making*, *existential thinking*, and *consciousness expansion*. With these capacities, MZ holds the potential to address the questions and concerns raised by AI research and technologies.

SQ can help alleviate the stress and anxiety caused by the rapid development and influence of AI technologies by fostering sensitivity to shared human values through its capacity for *transcendence*. When the line between humans and machines becomes blurred, SQ may serve as a unique and defining form of human intelligence. In this context, both CQ and SQ represent critical aspects of contemporary human adaptive and problem-solving intelligence. While AI primarily replicates GI/IQ, it appears incapable -at least for now- of emulating human-specific traits like cultural production and spirituality. Moreover, SQ can protect against the cognitive and psychological health risks posed by AI-based digital platforms. Skills such as *transcendence*,

connectedness, *consciousness expansion*, *existential critical thinking*, and *meaning-making/construction* enhance focus, enable effective attention management, support discerning information, and integrate experiences into broader meaning systems. These capacities can help resist mental manipulation, prevent addiction, counter fanatical thinking, and reduce violence by promoting the “common good for all.” Awareness of attention theft and manipulative reasoning can be strengthened through *consciousness expansion*. SQ’s focus on *connectedness* and *transcendence* also mitigates risks such as *echo chamber*-induced fanaticism. *Expanding consciousness*, especially through *mindfulness*, enhances attention focus, while *transcendence* and *consciousness expansion* reduce susceptibility to extreme emotions like anger and hatred. Additionally, SQ’s relational dimension fosters meaningful connections with oneself, others, and the broader world.

One possible way for humans to escape the *digital prisons* (Görmez, 2023) of today’s world, which disconnect them from themselves, could be through spiritual intelligence. In its simplest form, SQ defined as the ability to use spiritual resources for problem-solving (Emmons, 2000; King, 2008), can significantly contribute to healthy thinking, decision-making, and action through practices like deep thinking, reflection, and mindfulness. In this way, an advanced SQ can support effective problem-solving by fostering deep thinking in the face of numerous challenges on individual, environmental, and global scales (Green & Noble, 2010, pp. 41–45). Research indicates that SQ may be positively associated with interpersonal relationship and communication skills such as *mindfulness* (Skrzypińska, 2020), *self-management*, *meaning in life*, *empathy*, and *resilience* (Pinto et al., 2023) and may negatively correlate with the development of addiction (Afshar et al., 2015; Demir, 2020; Giannone & Kaplin, 2017).

Based on all the observations so far, it can be suggested that in the new global context where AI -modeled after human intelligence- and its practical effects are evolving into a framework with the potential to dominate, guide, or even harm its creators’ intelligence, SQ capabilities should be explored, developed, and actively utilized. To achieve this, integrating SQ into educational system, psychological therapy, and counseling processes could be proposed. Specifically, the education system and curriculum hold critical importance in strengthening this form of intelligence. Topics such as spirituality, sources of meaning and purpose, and their construction could be integrated into educational curricula, particularly in high schools and universities. Additionally, SQ support and intervention programs could be designed. Thus, contributing to the development of young people’s SQ can equip them with psychological tools to think deeply and cope effectively with real-life problems, including cognitive manipulation, attention fragmentation, polarized thinking, addiction, and ethical dilemmas, all relevant to the context of the modern

world. Similarly, SQ intervention programs can be integrated into psychotherapy and counseling training and practice processes to contribute to addressing the aforementioned issues. These programs can assist individuals in recognizing their spiritual resources and effectively utilizing them in problem-solving.

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