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ARTIFICIAL INTELLIGENCE AS A SUBSTITUTE FOR REALITY FOR CHILDREN

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Abstract. *The article explores the impact of artificial intelligence (AI) on children's upbringing and development, particularly in education, socialization, and critical thinking. The aim is to highlight the ethical concerns surrounding AI's influence on child development and to examine the risks of AI replacing reality. The study employs general scientific methods of cognition, including analysis, synthesis, comparison, generalization, and a systematic approach. The findings indicate that AI plays a crucial role in shaping an integrated educational environment, fosters critical thinking, and enhances access to learning materials, especially for children with special educational needs. The use of augmented reality and interactive learning allows for personalized education, promoting self-development. Additionally, AI-powered virtual agents can support the formation of healthy habits and social skills by engaging children in dialogues and discussions. However, the study also identifies several risks associated with excessive AI use. Prolonged screen time can lead to vision impairment, sleep disorders, and reduced physical activity. There is also a risk of technoference, weakening emotional bonds within families, while AI-driven cyberbullying can exacerbate social conflicts among children. Key ethical challenges include accountability for AI-generated decisions and the potential distortion of interpersonal communication if children become accustomed to interacting with machines as their primary social partners. The practical significance of the study lies in developing recommendations for the balanced use of AI in children's education to safeguard their physical, emotional, and social well-being.*

Keywords: *artificial intelligence, education, critical thinking, socialization, ethical challenges.*

Introduction

Artificial intelligence is a continuation of technological evolution, following the introduction of television, the internet, smartphones, tablets, and video games. In recent years, AI has been integrated into nearly every aspect of human life, playing an increasingly significant role in children's daily experiences. The pace of this evolution is accelerating, creating a sense of revolutionary change in the economic, social, and ethical fabric of society.

The digital environment has undergone major transformations, particularly in the past five years, when media interaction levels have surged across generations. The COVID-19 pandemic contributed to this trend, increasing average screen time by 17%. In the U.S., teenagers now spend over eight hours daily on digital devices, excluding educational activities [10]. Statistics indicate that 40% of middle school students in Europe actively engage with AI technologies, with some even substituting chatbot

interactions for real friendships. Research shows that 41% of respondents use AI, with 10% doing so daily and another 15% several times per week [3].

Currently, the most popular AI tool among children is ChatGPT, followed by Snapchat's My AI, which allows users to create virtual mentors and friends. This suggests that young people are not only using AI for learning but are also integrating it into their social lives [3].

A significant observation is that children exhibit active social responses to AI while reducing real-life interactions with people. Studies on children aged 3–6 reveal that they are less likely to correct misunderstandings when conversing with voice assistants, avoid answering complex questions, and demonstrate increased attention to cooperative and informational needs of AI systems rather than human interactions. This indicates that children perceive AI as a unique entity that combines characteristics of both living and non-living objects [13].

Despite concerns about AI's potential impact, it is undeniable that the technology has become an integral part of children's digital environment [Neugnot-Cerioli], with its influence set to expand in the coming decades. AI's role in education, socialization, and support for children with special needs will make childhood more interactive, inclusive, and personalized. It is crucial to ensure that AI enhances, rather than replaces, human interaction, equipping children with essential skills for thriving in a high-tech world [8].

This raises an ethical question: can AI replace reality for children? What are the benefits of AI for civilization's development, and what risks and consequences might arise? These concerns underscore the relevance of this study.

Literature Review

The issue of AI replacing reality for children remains insufficiently explored in international academic literature. However, the phenomenon of virtual reality supplanting real-world experiences gained attention fifty years ago. The emergence of video games in the 1970s, such as Pac-Man and Super Mario, sparked a surge in popularity, and today, games like World of Warcraft, Minecraft, and Fortnite captivate children to the extent that they neglect traditional social needs in favor of virtual

engagement. Many forgo studying, physical activity, personal hygiene, and even face-to-face interactions, drawn by the immersive appeal of these digital worlds.

In 2018, the World Health Organization officially recognized gaming disorder as a mental health condition, emphasizing the severity of the issue. Children struggling to control their gaming time often experience declines in quality of life, social isolation, and reduced physical activity. The rise of AI has intensified this challenge by making games more engaging, simplifying development, and deepening immersion in virtual environments, further blurring the boundaries between fiction and reality.

Existing research primarily focuses on AI's impact on cognitive development, socialization, education, and ethical considerations, yet it does not comprehensively address the risk of AI fully replacing reality for children. Instead, studies explore AI's broader influence on childhood development.

Notable researchers in this field include J. Anderson [2], who examines AI's effects on children's cognitive skills and social interactions. Y. Xu, Y. Prado, R. L. Severson, S. Lovato, and J. Cassell [13] analyze the long-term implications of growing up in a digital environment. The advantages of AI in education are highlighted by J. E. LeMoine [8], who investigates AI's role in enhancing communication, inclusivity, and learning; K. Arundel [3], who studies AI use in schools; and L. Auburn [4], who explores AI's potential in early childhood development. Ethical concerns and future scenarios are discussed in the works of A. Shiv [12], who considers whether AI could replace parental roles, and T. Frey [6], who debates whether robots might compensate for demographic shifts. M. Neugnot and O. Muss Laurenty [10] provide interdisciplinary perspectives on AI's influence on child development.

Beyond academic studies, publications from K-12 Dive [3], Medical Press [4], and Futurist Speaker [6] address practical aspects of this issue. Despite extensive literature on AI, there is a noticeable lack of comprehensive studies specifically examining the risk of AI substituting reality for children. Thus, the available data has been systematized and presented in alignment with the study's objectives.

Purpose of the article

The purpose of the article is to highlight the ethical concerns regarding AI's

impact on child development and to examine the risks of AI replacing reality.

Research results

The primary goal of artificial intelligence (AI) developers is to automate industrial and economic processes. Traditionally, an individual's value has been measured by their productivity. However, in a world where robots handle most economic tasks, the concept of social value must be redefined. This shift calls for new models of self-realization that prioritize creativity, social connections, and personal growth over mere productivity. The changing relationship between labor and self-fulfillment necessitates alternative sources of identity. In the post-industrial world, where human labor becomes less essential, social interaction, self-improvement, and creativity emerge as the key components of personal fulfillment [6].

Beyond social implications, AI also addresses broader civilizational challenges. Analysis of recent decades shows that increasingly sophisticated robots are progressively replacing human labor. Job losses have primarily affected low-skilled workers in the manufacturing sector. According to BBC data, between 2000 and 2017, 1.7 million jobs were lost, mainly in China, Europe, and the U.S. A study by MIT found that each new robot in the manufacturing industry replaced an average of 3.3 workers in the U.S., leading to a 0.4% decline in wages during this period [1]. Displaced workers must seek opportunities for reskilling and skill development to meet the evolving demands of the labor market. AI facilitates this process, with its most significant contribution being the accessibility of knowledge. The educational applications of AI are particularly valuable for both children and adults.

Modern artificial intelligence (AI) technologies are increasingly surpassing the boundaries of traditional applications of large language models (LLMs) and shaping a new paradigm of virtual environments. These environments are being actively integrated into both educational processes and commercial domains, particularly marketing, media industries, and customer service. Among the leading platforms in this field, DeepBrain and Synthesia stand out as innovative systems that employ AI to generate video content using digital avatars that closely resemble real human beings.

The DeepBrain AI platform specializes in the development of realistic avatars

capable of communicating in natural language, displaying gestures, facial expressions, blinking, and other elements of non-verbal behavior. These avatars are modeled on real people, reflecting their behavior, vocal intonation, and emotional responses. Applications of such digital agents span a broad spectrum – from automated news presenters and virtual consultants to AI-powered teachers. The official website of the platform, DeepBrain, presents a catalog of avatars, each designed for specific functional purposes [5].

The Synthesia platform is another leader in AI-based video generation. It enables the creation of presentations and marketing videos with avatars, script control, and visual editing tools. Core technologies underlying the platform include deep learning, text-to-speech synthesis, lip-syncing, natural rendering, and natural language processing. As a result, these tools can perform tasks that traditionally required human involvement [9].

The widespread adoption of these technologies is significantly transforming professional activities. Avatars can now accompany users, provide recommendations, and replace specialists in banking services, education, and media. For instance, virtual presenters are already being used for news broadcasting on the internet and television. In the banking sector, digital avatars are replacing human consultants, while Oxford University Press utilizes personalized video lessons featuring various narrators for educational purposes [11].

Despite rapid advancements, several important challenges remain. One of the primary concerns is trust in the content generated by AI. These systems are prone to a phenomenon known as “hallucination” – the generation of inaccurate or fabricated information – which poses risks in contexts where factual accuracy is critical. Moreover, avatars can imitate voices and the appearances of real individuals, raising ethical concerns regarding their use in political communication or legal contexts.

Thus, although AI-driven video generation technologies open new horizons in education, business, and mass media, they also present a range of ethical and technical challenges that require thorough investigation and regulatory oversight.

Scientific research on AI’s role in child development categorizes its functions into

several key areas, as illustrated in Figure 1.

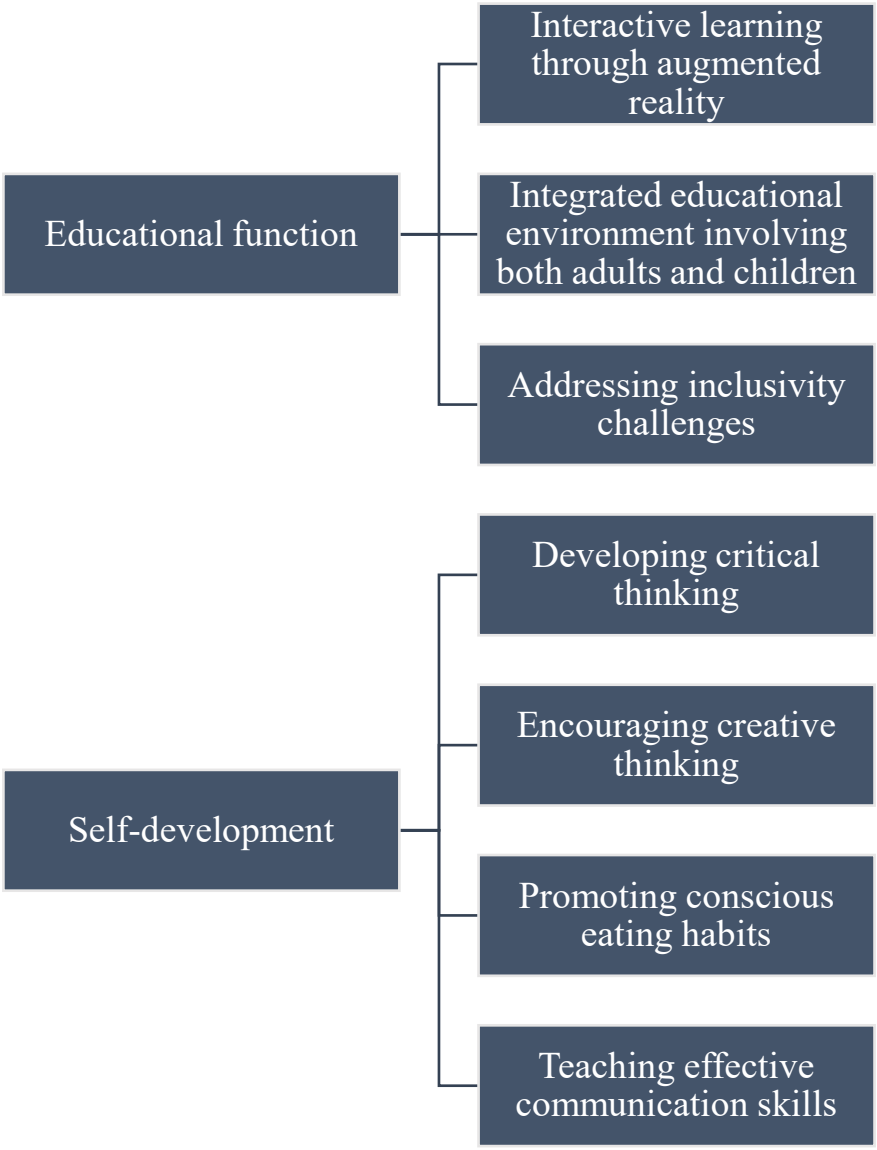

Figure 1 - The benefits of artificial intelligence

Systematized by the author

A closer look at the educational role of AI reveals its ability to create an integrated learning environment that engages both children and adults. The user-friendly nature of modern AI tools allows educators to quickly adapt teaching methods and implement innovative approaches without requiring advanced technical expertise. These technologies make education more accessible, while personalized learning enhances its effectiveness. Another key advantage is interactive learning through augmented reality, where gamified methods significantly improve engagement and retention. For

example, the game BeeTrap uses a bee pollination analogy to help children understand how algorithms function and how recommendation systems work [4].

AI also offers substantial support for children with special educational needs, particularly those on the autism spectrum. AI assistants can customize learning materials based on a child's unique needs, assisting with communication, emotional recognition, and social interaction [8].

Regarding self-development, AI fosters critical thinking by encouraging children to analyze algorithms and recommendations. As AI increasingly personalizes digital content, children must develop an awareness of digital media to distinguish between valuable information and potential biases [4]. However, one major concern is the risk of children adopting an uncritical approach to information. Recommendation algorithms, such as those used by YouTube and TikTok, curate content based on viewing history, potentially limiting exposure to diverse perspectives and creating "information bubbles" [2].

Modern AI tools, including ChatGPT and Copilot, are already assisting in communication between parents and caregivers. For example, AI helps professionals draft emails with appropriate tone and clarity when addressing sensitive issues. AI can also enhance social skill development in children. Virtual reading assistants, for instance, can stimulate dialogue, expand discussion topics, and promote tolerant behavior through embedded ethical algorithms [8].

Moreover, AI contributes to the formation of healthy eating habits. Some technological devices educate children on nutritious food choices, leading to improved overall health and well-being [4].

The potential applications of AI are vast. Today’s technologies offer children enhanced learning environments, improved communication, and creative opportunities. However, these advancements also come with risks, particularly concerning health.

Scientists are increasingly warning about the consequences of excessive screen time, such as a rise in myopia, particularly in Asia, where up to 73% of teenagers experience vision problems due to prolonged screen exposure and limited outdoor

activity. Excessive screen use also disrupts sleep quality, especially when devices are used before bedtime, negatively affecting cognitive abilities and mental health. Additionally, prolonged digital engagement correlates with reduced physical activity, increasing the long-term risk of cardiovascular diseases. The impact of AI varies among individuals, with neurodiverse children experiencing both benefits and challenges from digital interaction [10].

Another critical issue is AI's effect on parent-child relationships. The term technoference describes how technology disrupts communication and emotional bonding within families. Many parents express concerns about their own digital device use in the presence of their children, which can impact the quality of parenting. Beyond family dynamics, AI also influences peer relationships, contributing to cyberbullying, which carries severe psychological consequences [10].

One of the primary ethical dilemmas is accountability for AI-driven decisions. If an AI system makes a mistake, who bears responsibility – the parents, developers, or the child? This issue becomes particularly pressing when an educational AI assistant recommends inappropriate content or when a voice assistant provides incorrect information to a child [12]. An even more concerning scenario arises when an AI-powered nanny misreads the temperature of a baby's milk, leading to accidental harm. These questions remain unresolved [12], underscoring that AI, in its current state, cannot fully replace human judgment.

Despite AI's advancements, machines are still incapable of forming genuine emotional connections. Children develop empathy, social skills, and the ability to relate to others through human interaction. If they grow up relying on AI as their primary conversational partner, they may struggle with interpersonal relationships in the future [12]. For instance, a child accustomed to giving commands to AI without saying "please" or "thank you" may adopt similar behavior in real-life interactions. To counteract this, some developers have introduced features that encourage politeness. Amazon Echo Dot's "politeness mode," for example, thanks children for using courteous language [12].

The use of artificial intelligence in the creation of video content, particularly

through the incorporation of photorealistic digital avatars, poses a potential threat to the psychological development of children, especially those in the 3–4-year age group. At this developmental stage, children have not yet formed a clear understanding of the boundary between reality and fiction. Information perception in early childhood is predominantly integrative, with visual stimuli and emotional impressions taking precedence over logical and critical thinking.

One of the primary dangers lies in the blurring of boundaries between the real and the virtual, which can contribute to the formation of distorted cognitive models of the world. Photorealistic avatars that look and behave like real people can create in children a false representation of reality. This becomes particularly problematic when the digital character exhibits behavior that contradicts social norms or conveys oversimplified and stereotypical worldviews. Passive consumption of visual content –especially over extended periods – can lead to reduced development of empathy, speech, and social interaction skills. Instead of engaging in live dialogue and emotional exchange with adults or peers, the child observes a standardized avatar response, which lacks adequate feedback. As a result, the development of emotional intelligence – critical during early psychosexual and emotional formation – may be suppressed [6].

Another significant concern is the uncritical perception of the authority of digital avatars. Children may automatically trust everything an avatar says or demonstrates, even when the information is incorrect, manipulative, or potentially harmful. This opens the door to both unintended and intentional formation of false beliefs, behavioral patterns, or consumerist attitudes [7].

Educators, developers, and parents must work toward creating a balanced environment where AI complements traditional learning rather than replaces it. Key considerations include:

1. Transparency and awareness – Children should understand that they are interacting with a program, not a human, and that AI can make mistakes.

2. Critical thinking development – Educational programs should incorporate fact-checking and source analysis.

3. AI tools that encourage human interaction – Rather than replacing

communication with parents, teachers, or peers, AI should facilitate these interactions. For example, interactive platforms could include discussion prompts for both children and parents.

4. Social skill development through AI – AI can model ethical behavior, promoting politeness, empathy, and cooperation [2].

Early education should integrate AI literacy, teaching children how algorithms work and how to verify information. Studies have shown that even preschoolers can grasp basic AI principles when taught appropriately [Shiv]. Additionally, children should learn to use AI for practical tasks without requiring advanced programming knowledge, thanks to intuitive web-based tools that enable them to analyze data using machine learning [4].

Conclusions

Artificial intelligence (AI) can significantly enhance various aspects of children's lives, particularly in education, by providing interactive and personalized learning experiences and supporting skill development. However, AI cannot fully replace reality for children. Human interaction remains crucial for developing empathy, emotional intelligence, and interpersonal relationships. The growing reliance on AI also presents risks, including health concerns, reduced social engagement, and flawed communication habits. Therefore, while AI serves as a valuable tool for education and personal growth, it should complement – not replace –real-world experiences and human connections. A balanced approach is essential to ensure that technology supports children's development without diminishing the human aspects of their growth and socialization.

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