Chapter VI

Children's Literature, Popular Science, and Technology: The Magnificent Trio

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Introduction

Today, the rapid advancement of technology and the consequent evolution of educational processes toward technology have fundamentally transformed access to information (Arslan & Şendurur, 2017). Traditional classroom environments have been replaced by virtual classrooms and digital platforms, providing students with more engaging and interactive learning experiences. Video lessons enriched with animations, online quizzes, and interactive games offer alternative pathways for students to better grasp lesson topics. The contribution of popular science to this process should not be overlooked. Popular science books and resources, which render medium or advanced scientific topics comprehensible through language tailored to the target audience, help students develop scientific thinking skills (Taşdelen & Güven, 2024) while also reinforcing their sense of curiosity. It can be argued that children's literature plays a crucial role in technology-oriented educational approaches. Works written for children stimulate their imagination, enhance language skills, and contribute to their social and emotional development. Interactive storytelling, digital books, and other animation-based applications not only promote reading habits among children (Yılmazsoy, 2020) but also increase their interaction with technology. The role of literature in education paves the way for children to develop critical thinking skills, empathy, and the ability to understand different perspectives. Thus, children's literature not only offers an enjoyable reading experience but also plays an important role in the integration of education with technology, making the learning process more enjoyable.

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Children's literature plays a significant role in every aspect of education. In science-oriented educational models, for instance, natural phenomena and scientific concepts are presented in a fun and engaging way through stories written for children, thereby stimulating their curiosity. In one story, a group of children might be solving problems encountered during space exploration, while in another, a group of volunteers may be working in a nanotechnology research lab. Such narratives serve as valuable starting points for fostering scientific thinking skills. In language learning classes, children's literature is supported by works that expand vocabulary in addition to developing linguistic skills. Fairy tales and poems help children enrich their language development by aiding them in learning more words and understanding language structures. Furthermore, in social studies classes, stories provide information about historical events, cultures, and individuals, while also strengthening children's ability to empathize. By witnessing different characters' perspectives, children can gain a broader understanding of the world. In subjects such as mathematics, biology, and chemistry, children's literature facilitates the entertaining presentation of mathematical concepts, the better discussion of formulas, life cycles, and issues such as climate change, thus contributing to deeper understanding. Counting, addition, and subtraction operations embedded in stories involving objects and characters enhance children's mathematical thinking skills. For example, in one story, children might calculate the necessary supplies to feed animals in a zoo. In another, they might investigate the causes of drought, or conduct chemical experiments on various topics to make life easier.

Children's Literature

Children's literature is a field that appeals to the emotions and thoughts of children, aiming to develop these through language (Yükçü, İzoğlu, & Kangal, 2019). The works written for this purpose are considered children's literary products. In general, this genre includes stories, fairy tales, poems, plays, and novels that are tailored to children's age, level of understanding, and areas of interest.

Beyond entertaining, children's literature also contributes to the development of children's artistic and aesthetic sensibilities. Imagination, language skills, and socio-emotional development in children are supported through children's literary works (Çer, 2019). Children's literature contributes to the linguistic, expressive, artistic, and aesthetic development of its target audience from early childhood through adolescence. Stories and fairy tales read during the preschool period shape children's perception of the world and support their language development. With the support of parents, children who are introduced to books

begin to understand life through the fictional narratives they encounter. During the school years, children's literature assists in comprehension and the learning of new information. Novels and storybooks help children develop critical thinking skills and enhance their decision-making abilities. Literary works enable children to think from different perspectives and strengthen their capacity for empathy. This, in turn, supports healthier social relationships and contributes to their development as well-rounded individuals. Additionally, children's literature plays a significant role in helping children develop positive habits from an early age, which in turn contributes to their happiness and well-being. The values, virtues, and moral attitudes they encounter in books play a determining role in their character development (Enginün, 2006). Fairy tale characters who distinguish right from wrong and understand the balance between good and evil help shape children into more conscious and responsible individuals in the future.

The Development of Children's Literature

Books specifically written for children in the modern sense first emerged in Europe in the 17th century. In antiquity, there were no distinct works written solely for children. However, works such as Aesop's Fables—although not written exclusively for children—appealed to both adults and children with their moral lessons delivered through animal characters. During the Middle Ages, education was centered around religion and the number of literary works was quite limited. With the Renaissance, the individual and education gained prominence, and the first books intended for children began to appear. The 17th century is considered the foundational period of modern children's literature as a distinct genre. With the Industrial Revolution, the employment of child labor in factories became widespread. One reason behind the emergence of works directed at children during this era was the belief that children needed to be educated to contribute more effectively to production. Manuals were developed to help child workers become more efficient, and these were written in a language and style comprehensible to children, thereby also aiming to contribute to their education. Such materials are regarded as the early foundations of children's literature. One of the prominent figures of this period, John Locke, emphasized the importance of books in children's education. During this time, books that conveyed general moral lessons to children were particularly prominent.

In the 18th century, childhood began to be recognized as a unique developmental phase. Rousseau's *Emile* played a pioneering role in children's literature. The 19th century is considered the "golden age" of children's literature. Fairy tales, stories, and fantasy novels

became increasingly popular. Examples of influential works from this period include *Andersen's Fairy Tales*, the collected tales of the *Brothers Grimm*, and Lewis Carroll's *Alice's Adventures in Wonderland*. In the 20th century, children's literature diversified significantly, with psychological, social, and cultural dimensions coming to the forefront. Authors such as Roald Dahl, Dr. Seuss, and J.K. Rowling have shaped the modern face of children's literature. From its origins to the present day, some of the foundational authors and works of children's literature (Koyuncuoğlu, 2021) can be listed as follows:

- **Germany**: *The Brothers Grimm* (Jacob and Wilhelm Grimm): Compiled and transcribed folk tales. Classics such as *Little Red Riding Hood*, *Hansel and Gretel*, and *Snow White* have had a profound impact on Western children's literature.
- **Denmark**: *Hans Christian Andersen*: Brought emotional depth to children's literature with works such as *The Little Match Girl*, *The Little Mermaid*, and *The Ugly Duckling*.
- **United Kingdom**: *Lewis Carroll*: Laid the foundation of fantasy literature with *Alice's Adventures in Wonderland* (1865). *Beatrix Potter*: Known for the *Peter Rabbit* series, featuring charming animal characters. *A.A. Milne*: Highlighted themes of friendship and simplicity through *Winnie the Pooh*. *Roald Dahl*: Combined entertainment and critique in works such as *Charlie and the Chocolate Factory*, *Matilda*, and *James and the Giant Peach*. *J.K. Rowling*: Had a global impact on contemporary children's and young adult literature with the *Harry Potter* series.
- **France**:*Charles Perrault*: Created children's literature classics such as *Cinderella*, *Sleeping Beauty*, and *Little Red Riding Hood*.
- *Antoine de Saint-Exupéry*: *The Little Prince* (1943) stands out with its philosophical depth.
- **Italy**: *Carlo Collodi*: *Pinocchio* (1881) is a universally known work emphasizing the consequences of lying.
- **In the United States**: L. Frank Baum's *The Wonderful Wizard of Oz* (1900) presents a fantastical journey story. Dr. Seuss is known for his poetic style and rhythmic language in books such as *The Cat in the Hat* and *Green Eggs and Ham*. E.B. White's *Charlotte's Web* emphasizes the importance of friendship and loyalty.

In Turkey, children's literature has evolved from the Ottoman era to the present, progressing through the periods of Divan Literature, Tanzimat, Servet-i Fünun, and the National Literature movement. Although there was no distinct literary genre specifically created for children

during the Divan Literature period, many works from that era can be seen as indirectly addressing children. Fairy tales, poems, and elegies written in this period served as important sources for both the education and entertainment of children. For instance, the allegorical narrative in Şeyh Galip's *Hüsn ü Aşk* employs a fantastical language that enriches children's imagination and can therefore be regarded as an early example of children's literature.

The Tanzimat era represents a turning point in the development of children's literature. During this time, in response to societal and educational needs, works specifically aimed at children began to be written. Namık Kemal's play *Akif Bey*, considered the "first Turkish drama," is one of the earliest examples of children-oriented literature. Additionally, *Tercüman-ı Ahval*, a newspaper launched in 1869, featured sections dedicated to children, containing educational stories, fairy tales, and content that contributed to children's development. Many Tanzimat-era authors wrote literary works for children as part of this cultural shift.

Children's literature continued to evolve during the Servet-i Fünun period. Writers such as Tevfik Fikret and Halit Ziya Uşaklıgil created works that supported children's intellectual and emotional development. Novels for children and literary works such as stories and poems appeared in magazines of the time. The popular magazine *Mektep* played a significant role in publishing and disseminating children's literature during this period.

The National Literature era approached children's literature from a broader perspective. Influenced by the rise of Turkish nationalism, greater emphasis was placed on producing works specifically for children. Ömer Seyfettin emerged as a prominent figure during this period. His stories such as *Kaşağı* and *Bomba* left lasting impressions on young minds through their entertaining yet instructive content. Moreover, children's magazines such as *Çocuk Dünyası* and *Güneş* served as significant platforms for presenting children's literary works. These magazines contributed substantially to the development of children's literature by including stories and activities aimed at strengthening children's national identity (Sınar, 2006).

With the establishment of the Republic, the development of children's literature accelerated. Significant milestones include the publication of *Children's Books* by the Turkish Language Association in 1928 and *The First Children's Book* in 1933. In the following decades, various public institutions contributed to the field through children's books and magazines. After the 1950s, first radio and then television, followed by the internet in the 2000s, increasingly influenced the development of children's literature. Today, children's literature plays a crucial role both in the transmission of cultural heritage and in raising a new generation of readers.

Was Children's Literature Created Merely to Increase Consumption?

Following the Industrial Revolution, it is known that production increased significantly, and in order to meet growing production demands, child labor became prevalent. In Europe, where adult literacy rates were already low, the education of child workers emerged as a serious issue. Some of the texts developed to address this problem and written specifically for educating child laborers are considered by certain scholars to form the foundation of children's literature (Şimşek & Kartal, 2022).

From this point of view, there are authors who argue that the emergence and development of children's literature were driven purely by consumer-oriented motives. Advocates of this perspective claim that children's literature initially developed solely for economic purposes, and that the emotional and intellectual needs of children were largely neglected. They argue that many early works aimed at children were didactic in nature, lacking elements of entertainment and failing to nurture children's imagination, emotions, and sense of identity. Such critiques highlight that although children's literature has gained more diverse and enriching content over time, its initial use as a utilitarian tool brought certain limitations.

In contrast, other scholars argue that children's literature emerged from necessity and fulfilled multiple functions from the very beginning (Orhan, 2021). Proponents of this view contend that, alongside its practical purposes, literature of the time also aimed to foster children's imagination and intellectual development. They emphasize that children's literature is not only educational but also entertaining, contributing to children's social and cultural growth. Thus, children's literature evolved from being merely a means to prepare child laborers for industrial work into a tool that supports children's integration into society as individuals in their own right.

What Are the Forms of Children's Literature?

Children's literature encompasses a wide range of works designed to help young individuals acquire knowledge in an enjoyable and educational manner. Among the most common forms are books and magazines. Storybooks, fairy tales, and poetry anthologies, for example, play a crucial role in fostering children's imagination. Additionally, comic books and picture books prepared for children also hold a significant place within this genre. Magazines offer children access to information on current topics, while digital content—such as educational apps and interactive stories—has become an integral part of contemporary children's literature. In this

context, the term “children’s literature” should not be understood solely as limited to printed materials; rather, it includes all forms of literary works produced in digital environments as well (Sayer, 2007). This broad and evolving definition reflects the multifaceted nature of children’s literature in the modern era, where traditional and digital mediums coexist to support children’s cognitive, emotional, and cultural development.

The Current State of Children’s Literature Products

Today, children’s literature products have diversified significantly in both quantity and quality. This variety is evident in both printed and digital formats of children's literature. While children's books remained largely black-and-white until the mid-20th century, the second half of the century marked the beginning of more colorful and visually engaging works. With the advent of the 21st century, new design approaches have also emerged in printed literary works. In addition to traditional paper books, digital formats such as e-books and audiobooks have become increasingly popular, especially among children growing up in the digital age. Children’s literature today also attracts considerable attention from educators and parents, leading to a growing body of research and scholarly analysis in the field. In Turkey, many new authors have entered the field of children’s literature, and alongside locally produced works, translations from world literature have also gained popularity. International events and competitions provide opportunities for authors to develop their craft and reach broader audiences. These developments have significantly increased children’s access to a wider range of high-quality and diverse literary content.

Popular Science

Popular science refers to the communication of scientific findings—derived from academic research—to the general public in an accessible and comprehensible manner (Güner & Çitçi, 2010). The language of academia is universal and often complex, making it difficult for non-specialists to understand. Popular science plays a critical role in publicizing scientific research, fostering public interest in science and scientists, and enhancing scientific literacy. Works produced in this style are referred to as popular science publications and can include books, magazines, and a wide range of digital media.

The Emergence and Development of Popular Science

Communication is believed to have begun with the earliest humans, as evidenced by cave paintings, standing stones, and tree markings used to convey messages. With time, writing was

invented and evolved from pictographic forms into more complex systems. Throughout history, writing has served numerous purposes—including the expression of emotions, dissemination of news, and transmission of truths. Archaeological findings show that writing was also used to communicate scientific knowledge and preserve it for future generations. The Industrial Revolution marked a turning point, accelerating scientific research, particularly in chemistry and mechanics, and increasing mechanization and production. The need to convey scientific developments and consumer products to broader audiences led to a demand for clear, accessible language. This necessity gave rise to popular science writings in the 18th century. During and after this period, industrialists, engineers, and scientists began contributing articles to newspapers and magazines to explain their work to the public. Over time, publications focusing solely on scientific and technical subjects emerged, and popular science began to develop rapidly. As a result, science started to become part of daily life (Dursun, 2010), and scientific topics became more accessible. Popular science books simplify complex scientific concepts and present them in an understandable manner, aiming to make scientific knowledge widely available. These publications contribute significantly to education by helping students understand scientific concepts, improve critical thinking skills, and increase scientific literacy. Studies have shown that reading popular science books in classroom settings enhances students' interest in science and supports their cognitive development (Eren, 2022).

The growth of popular science publishing has not only supported the dissemination of industrial and scientific discoveries but has also been influenced by increasing literacy rates, the spread of printing technology, and the evolution of journalism. Consequently, science communication became a recognized field (Dursun, 2010). Scientific journals, encyclopedias, and books became more common, and scientists started explaining their discoveries in more accessible language to engage the public.

In Turkish literature, there are early examples of texts that may be classified as popular science. During the Divan Literature period, poems addressing natural sciences were written, often in Arabic and Persian—the scholarly languages of the time. Although these texts were stylistically ornate and not easily understood by the public, topics such as astronomy, medicine, mathematics, and natural phenomena were occasionally addressed (Güler, 2018). Ali Kuşçu, a renowned scientist, produced literary works in astronomy that represent the intersection of science and literature (Pattabanoğlu & Uymaz, 2021). Other Divan authors who touched on scientific subjects include Nabi, Kâtip Çelebi, and Seydi Ali Reis. In Turkish folk and Sufi literature, scientific themes were often presented in a language accessible to the general public. For example, Aşık Veysel's poem *"Bir Dert Ehli Bulsam Derdim Söylesem"*

deals with the pain of an incurable illness, while his poem *"Erzincan (Sam Değmiş)"* describes the destructive impact of the 1939 Erzincan earthquake. Traces of popular science can even be found in proverbs such as: "Cloudy mountains always bring rain," "Rain follows the wind, quarrels follow jokes," and "South wind brings summer, north wind brings winter."

In modern Turkey, popular science gained significant momentum starting in the mid-20th century. Public institutions, scientists, and authors began publishing and organizing seminars to bring science closer to the people. One major milestone was the establishment of the Scientific and Technological Research Council of Turkey (TÜBİTAK) in 1963. Since then, TÜBİTAK has played a crucial role in supporting scientific research and popularizing science across Turkish society through its publications and educational programs. Among TÜBİTAK's most influential contributions are its popular science magazines. *Bilim ve Teknik* (Science and Technology), launched in 1967, is Turkey's longest-running popular science magazine and has been a key medium connecting science with society. To reach school-aged children, *Bilim Çocuk* (Science for Children) began as a supplement in 1996 and became an independent magazine in 1998. Later, to introduce preschoolers to science, *Meraklı Minik* (Curious Little One) was launched in 2007. In 2015, TÜBİTAK expanded its efforts to digital platforms through *Bilim Genç*, a web-based science communication outlet. In addition to its periodicals, TÜBİTAK publishes popular science books for all age groups and supports various outreach programs including "TÜBİTAK 4004: Nature Education and Science Schools," "TÜBİTAK 4005: Innovative Educational Practices," "TÜBİTAK 4006: Science Fair Support Program," and "TÜBİTAK 4007: Science Festivals Support Program." Besides public institutions, private organizations and NGOs in Turkey also contribute to the dissemination of popular science through books, magazines, documentaries, competitions, conferences, congresses, scientific excursions, and observational studies. The rapid pace of technological advancement continues to play a significant role in the expansion and accessibility of these efforts.

The Current State of Popular Science

Globally, interest in popular science continues to grow rapidly, especially in developed countries, where research and dissemination activities are intensifying. This growing interest has accelerated the production and accessibility of popular science materials. One notable example is the *International Science Olympiads*, which began in 1978 and continue to expand with increasing participation. In addition, international exchange and educational programs such as *ERASMUS, Farabi, Mevlâna, ISEP, IAESTE, Global UGRAD, YES,* and *YFU* have

further contributed to the spread and development of popular science across different age and education groups. Contemporary popular science publications address a wide range of subjects, including health, education, architecture, food, and technology. Health has become a particularly prominent topic in popular science, especially in the wake of the COVID-19 pandemic. Topics such as public health, virology, vaccine development, and healthy lifestyle practices are widely discussed, helping readers understand ways to protect their health while learning about groundbreaking scientific research. In the field of education, popular science enriches knowledge with books that explain fundamental learning processes and effective pedagogical strategies. Research on the role of technology in education, innovative teaching methods, and child development attracts the attention of educators and parents. These data-supported strategies contribute to the creation of more effective learning environments. In architecture, popular science literature covers themes such as sustainable building design, smart city applications, and green architecture. These topics not only promote environmental awareness but also foster public understanding of future trends in architecture. In the realm of food, popular science explores nutrition science and food safety. Subjects such as organic farming, innovative food production methods, and diet trends are frequently discussed, providing readers with important insights into healthy living. Technology remains one of the most significant focal points of popular science. Topics such as artificial intelligence, biotechnology, space exploration, and nanotechnology captivate the curiosity of scientists and the general public alike. These subjects help explain transformative innovations that affect daily life.

In this way, popular science serves to communicate complex scientific developments in a simplified and engaging manner, making science more accessible to broader audiences.

Technology

The term *technology* is derived from the Greek words *techne* (art, skill) and *logos* (knowledge, discourse). It can be broadly defined as the ability to create and utilize tools based on scientific knowledge to meet the needs of humans or other living beings (Günay, 2017). From an academic perspective, technology refers to the integration of knowledge, skills, methods, and processes to produce goods, services, or systems. In its most general sense, technology represents the practical application of theoretical knowledge. For instance, understanding that lenses can magnify is knowledge; however, using lenses to manufacture glasses or similar tools for everyday use is considered technology.

Are Technological Advancements Beneficial to Humanity?

Technological advancements arise from human needs. If humans had the physical strength to lift tons of weight, there would be no need for heavy vehicles or lifting devices, and consequently, no technological developments in this field. In this context, it is fair to assert that technology, in general, serves the benefit of humanity. Indeed, throughout history, technological innovations have introduced groundbreaking changes in various domains, significantly easing human life and enhancing the quality of living. The 20th century, in particular, stands out as a period where scientific knowledge and technological production became deeply intertwined, resulting in transformative progress in crucial fields such as health, communication, transportation, and food. In the medical field, the discovery of antibiotics, the development of vaccines, and the invention of imaging technologies like MRI and tomography have enabled the diagnosis and treatment of countless fatal diseases. Conditions once deemed incurable can now be effectively treated. Moreover, new, durable, and biocompatible materials have been invented for use in diagnostics and treatment, leading to a tangible improvement in overall quality of life. In the field of communication, the advent of technologies following the telephone, radio, and television—namely the internet, social media, and mobile technologies—has greatly facilitated interpersonal and societal interaction. These innovations have opened new horizons in education, employment, and personal development. Today, remote education, teleworking, and telemedicine services are made possible through these technological developments. Individuals can now consult with doctors, receive diagnoses, and even get test results without visiting a hospital. In transportation, advancements in automobiles, trains, airplanes, and maritime systems have not only supported economic development but also increased individuals' social mobility, effectively rendering the world "smaller." Thousands of people and tons of goods can now be transported swiftly, and intercontinental travel is possible within hours. In the domain of food technologies, innovations such as agricultural machinery, fertilization, and irrigation systems have significantly improved productivity and allowed food to reach a wider population (Pakdemirli, Birişik, Aslan, Sönmez, & Gezici, 2021). In large-scale agribusinesses, food products capable of meeting the needs of millions are produced without human contact.

Are Technological Advancements Detrimental to Humanity?

While many argue that technological advancements serve the benefit of humanity, there is also a considerable body of thought emphasizing their adverse effects. The negative consequences brought about by technology are far from negligible. Particularly during the 20th century, the

two World Wars exemplify how technologies originally developed with good intentions were transformed into weapons of mass destruction, leading to catastrophic outcomes. The most devastating instance was the dropping of atomic bombs by the United States on the Japanese cities of Hiroshima and Nagasaki in 1945—a threat that still lingers today. Another critical issue arising from technological progress is environmental pollution and the growing problem of electronic waste (e-waste). Rapid technological development has significantly altered consumption habits. Millions of new electronic devices are introduced to the market annually, while outdated ones are discarded. This cycle has exacerbated the problem of e-waste. Devices such as phones, computers, and televisions often contain hazardous materials like lead, mercury, and cadmium, which pose serious risks to both the environment and human health. For instance, heavy metals from e-waste can seep into soil and water sources, disrupting ecosystems. Moreover, improper disposal methods release toxic gases, contributing to air pollution (Gürcan & Açıksöz, 2023). The widespread use of fossil fuels, which began with the Industrial Revolution and accelerated during the 20th century, has brought along numerous environmental challenges. Technological advancements have also led to social inequalities. Access to fundamental rights such as justice, education, healthcare, and employment is increasingly dependent on digital tools. As a result, individuals without access to technology are being further marginalized (Atasoy, 2007). Emerging threats such as cyberbullying, privacy violations, and ethical concerns related to artificial intelligence reflect the darker side of digital technologies. The psychological impacts of technology are also noteworthy. Social media, for example, has contributed to increased loneliness, comparative dissatisfaction, and attention disorders. Screen addiction among children and adults, as well as rising rates of depression among youth, demonstrate the detrimental effects of unchecked technology use (Arslan E., 2022). In this regard, technological progress poses risks to mental health as well. Additionally, rapid technological development has raised concerns about data security and digital threats. While access to information has become easier due to advances in communication technologies, the protection of personal data has become increasingly challenging. Sensitive information—such as personal details, banking credentials, and location data—can be exploited by malicious actors. Cyberattacks now target not only individuals but also state institutions. Critical infrastructures like power plants, hospitals, and financial institutions have become vulnerable. For example, the 2017 WannaCry cyberattack affected over 150 countries, paralyzing hospital systems and public institutions (Çifci, 2024). While technological advancements have enhanced production efficiency, they have also reduced the demand for human labor in many industries. Robots, software, and artificial

intelligence systems are increasingly replacing human workers in sectors such as manufacturing, banking, transportation, and services, thereby creating a threat of unemployment for thousands. This also highlights a major drawback of technological progress. In light of these examples and concerns, it becomes crucial to educate future generations—our children—about both the positive and negative aspects of technology through popular science and educational tools.

Reflections of the Digital Revolution on Children's Literature

The rapid digital transformation driven by technological advancements has profoundly reshaped children's literature. Today, children's interaction with literature has changed significantly due to the prevalence of digital platforms. Traditional print books are increasingly being replaced by digital materials. Although digital children's literature offers numerous advantages, it also presents certain drawbacks (Bardakçı, 2018). Accessibility is one of the key advantages of digital children's literature. With an internet connection—or even in offline environments—children can easily access a wide range of digital materials. This increased accessibility is believed to positively influence reading habits. Many parents, although ambivalent, view digital reading tools as beneficial for providing rich content to their children. Furthermore, interactive books engage children actively in stories, making the learning experience more enjoyable. Despite the physical limitations of digital devices, digitization has vastly expanded the functional capacity of children's literature. For instance, comparing a standard 32-page printed book with the volume of content stored on a 50 GB memory card clearly illustrates the storage and access potential of digital formats. In this sense, digitalization offers a remarkable advantage for children's literature. However, digital transformation in children's literature is not without its drawbacks. Prolonged screen exposure poses significant risks to children's eye health. Unlike reading printed materials, digital reading or viewing has notable negative implications for vision. Although recent advancements in digital screen technology have attempted to mitigate these risks, they remain insufficient. Another downside of digitalization is the decrease in physical activity among children. While printed books offer limited visual stimulation, digital formats can include unlimited animation, colors, and designs that attract children's attention. Interactive and animated digital books often result in children remaining sedentary and screen-dependent for extended periods. Additionally, there is concern over visual laziness or amblyopia. Some educators and parents argue that children who listen to or watch narrated digital stories tend to develop weaker reading habits compared to their peers (Kurşun, 2022).

Envisioning the Future of Children's Literature from the Perspective of Technology and Artificial Intelligence

Children are naturally curious, open to learning, and possess limited knowledge due to their developmental stage. These characteristics make children critically important for the future of both nations and the world. By designing appropriate educational programs, it is possible to cultivate the kind of citizens one envisions for the future (Ayvacı & Yurt, 2016). At this point, children's literature plays a pivotal role. Any type of information or message—whether direct or indirect—can be conveyed to children effectively through children's literature. Modern governments and educators are well aware of this fact and have consequently concentrated their efforts in this direction. To support the desired type of education for children, artificial intelligence tools are being developed at a breathtaking pace and are rapidly being integrated into educational systems. Societies and nations that fail to keep pace with technological developments are already at risk of falling behind in this race. When scientific and technological progress merges with children's literature and artificial intelligence, it may sometimes yield unsettling outcomes for humanity. Therefore, experts from various fields—especially educators, but also professionals in security, health, food, and communication—emphasize the importance of guiding this integration toward beneficial uses.

Children's Literature as a Shield Against Harmful Habits Induced by AI and Technological Advancements

With the development of artificial intelligence technologies, we are entering an era where systems that influence individual behavior are becoming increasingly prevalent. Children are particularly vulnerable, as they are exposed to a flood of written and visual information in AI-enhanced digital environments. While some of this content positively contributes to their physical and mental development, a portion of it poses risks. Currently, certain applications can analyze users' health data to monitor calorie intake, sugar consumption, and levels of physical activity. While these systems function like digital assistants promoting healthy lifestyles, there is a growing concern that in the future, such systems might become increasingly authoritarian. Hence, it is of great importance that these themes are addressed in children's literature—both in print and digital formats. Studies indicate that children in countries or regions where such education is provided, even if insufficiently, are more sensitive to these issues. Considering that these children will likely carry this awareness into adulthood, the long-term negative effects of AI and technological advancements on human physical and mental health can be significantly mitigated. Through these educational efforts,

children will develop greater caution when consuming food and beverages deemed harmful to their health. As a result, numerous illnesses can be prevented, harmful habits curbed, and healthier generations fostered. While legal regulations may limit access to unhealthy foods and substances via technological means, such as software restrictions, this approach is clearly not a comprehensive solution. For example, when a user attempts to order a pizza, the system might issue a warning such as: "Your blood sugar level is not suitable for this food." In more advanced scenarios, the system may outright reject the order. A similar mechanism could be implemented for attempts to acquire illicit substances. However, a child lacking such awareness might still manage to access these harmful items. Therefore, fostering consciousness and critical thinking in children through literature remains a vital and irreplaceable strategy.

Children's Literature as a Remedy for Cultural Erosion Caused by the Union of Artificial Intelligence and Technology

AI-based content filtering systems are already widely implemented on digital platforms such as YouTube, TikTok, and Google. These platforms offer recommendations based on users' age, gender, language preferences, and search history. While these systems enhance user experience, they also introduce "filter bubbles," which limit access to diverse information. In the future, as these filtering mechanisms become even more precise, it may be possible for users to be denied access to certain sources of information based on their religious beliefs, age group, or education level. For example, a school assignment that a student would normally research and prepare independently could instead be generated instantly by AI and presented to the student, perhaps even tailored to the student's national or religious sensitivities. While such a development may seem convenient in the short term and unlikely to cause concern among users, it brings with it serious long-term risks. Personalizing access to information based on user profiles may deepen social polarization, as individuals become confined to their own "digital echo chambers." This limits exposure to diverse perspectives and information sources. Moreover, individuals who, weary of isolation, attempt to reintegrate into society may be vulnerable to harmful ideologies if they lack a robust cultural foundation. Alienation from one's own culture due to cultural erosion may ensue. To prevent such scenarios, children's literature can address topics related to cultural erosion in an age-appropriate manner. It can also guide children on how and how often they should use technology and artificial intelligence, depending on their developmental stage.

Children's Literature as a Safeguard Against Discrimination in the Era of AI and Technology

AI-supported digital platforms now provide highly personalized services based on various parameters such as users' religious beliefs, location, nationality, social media behavior, financial history, and spending habits. While such personalization may appear to enhance user convenience, a deeper analysis reveals the potential for serious discrimination. As these systems evolve, the risk increases that individuals may be excluded from essential digital services—such as purchasing transportation tickets, booking hotels, applying for loans, or accessing healthcare and public libraries—based on factors like insufficient bank account balances, low credit scores, or politically unfavorable views. China's "social credit system," which tracks and evaluates citizens' behaviors to grant or restrict privileges, illustrates how widespread digital surveillance may become in the future. Such systems pose significant challenges to the principle of digital equality. Technology should ensure fair, transparent, and equal access for all members of society. Turning identity attributes such as political affiliation, religion, or socioeconomic status into barriers to digital services undermines social justice. This is where regulation and ethical principles become essential. National and international legal frameworks must ensure that AI systems function transparently, accountably, and equitably. To uphold human dignity in technological applications, society must also increase awareness of these risks. At this juncture, the role of children's literature creators becomes crucial. By presenting these topics in age-appropriate ways, authors can raise awareness in children and contribute to preventing the misuse of AI and technology in the future. In doing so, they can support governmental efforts to build a more just digital society.

Children's Literature Can Dispel the Myth That AI and Technology Promote Laziness in Students

The integration of AI with technological innovations in education has sparked debate about whether such tools diminish students' cognitive engagement and contribute to "robotic" thinking. This issue is of growing concern among educators, parents, and policymakers. Increasingly, students rely on AI-driven tools and feel less compelled to conduct their own research. While the use of AI tools such as ChatGPT in completing assignments can save time, overreliance may negatively affect students' learning and research abilities in the long run. Research skills involve not only gathering information, but also analyzing it, comparing sources, and forming personal interpretations—cognitive processes vital to both academic development and real-world problem-solving. When AI provides ready-made answers,

students may bypass these essential mental steps and focus only on outcomes, which can lead to a dependency on prepackaged knowledge. However, AI can be utilized as a guide. Instead of completing assignments entirely, it can assist students in sourcing materials, structuring content, and generating ideas. For example, in subjects requiring numerical analysis, AI tools can complete part of the task while encouraging students to complete the rest themselves. The key lies in teaching students how to use AI effectively and responsibly. These skills and principles can be introduced from an early age through children's literature. In this way, children can learn appropriate and purposeful use of AI in education, homework preparation, and daily problem-solving—fostering a balanced relationship with technology.

Children's Literature as a Solution to Issues Stemming from Early Access to Information, Inequitable Information Access for Disadvantaged Children, and Quality of Life Challenges for Vulnerable Individuals in the Context of AI and Technology

Through artificial intelligence and digital technologies, today's children gain access to information at much earlier ages than previous generations. While this presents clear academic advantages, it also introduces psychological risks. Early access to information can support cognitive development; however, when children are exposed to content beyond their developmental stage, they may experience cognitive overload. This can lead to early-onset adolescence, anxiety disorders, or a growing disinterest in knowledge itself. Especially through social media and algorithm-driven content, children's attention spans are shortened, and they increasingly rely on superficial knowledge rather than deep learning. Moreover, children who are compelled to form digital identities at a young age may develop psychological dependencies on online approval and social validation. Hence, alongside the right to access information, age-appropriate content filtering and digital guidance services have become essential. The use of AI in education must be guided by pedagogical principles and tailored to developmental stages. Regardless of legal regulations, behavioral habits must be established for meaningful outcomes—this is where the role of children's literature becomes indispensable. While AI and technology hold potential to promote educational equity, the digital divide continues to pose significant challenges for disadvantaged children. Children from low-income families, rural areas, or those with disabilities often face limited access to technology. On the positive side, technology can provide personalized learning opportunities and adaptive educational content tailored to individual needs. However, this

advantage is contingent upon the availability of internet access, devices, and technical support. Without these, disparities in access to information may widen even further. Addressing this issue requires policies and practices that ensure equal technological access for disadvantaged communities—an approach that must be nurtured from an early age through value-based education. To promote educational equity for children in underserved regions, both public policy and inclusive technological design are crucial. Otherwise, unequal access to information will deepen the existing social injustice in education. As such, children's literature can present these topics in developmentally appropriate ways to contribute to awareness and long-term solutions. The convergence of AI and technology also holds transformative potential for marginalized groups such as individuals with disabilities, the elderly, patients, and those with low incomes. These technologies not only facilitate access to information but also improve daily living by enhancing independence and comfort. For example, AI-assisted audiobooks, screen readers, and facial recognition technologies have removed barriers to information access for visually impaired individuals. Similarly, automatic subtitle systems and real-time sign language translation make education more accessible for those with hearing impairments. Social interaction applications designed for children with autism spectrum disorder help improve communication and language skills. AI-powered robotic arms and smart wheelchairs provide autonomy to individuals with physical disabilities. Personalized learning applications guided by AI adapt to individual learning styles, increasing motivation and engagement—especially for learners with attention deficit disorder or dyslexia. Nevertheless, to ensure inclusive access to these advancements, investments in infrastructure, teacher training, and ethical oversight are essential. Crucially, the responsible use of AI and technological developments depends on the human factor—people capable of managing this power for the collective benefit of society. Educating such individuals must begin at a young age through various forms of children's literature—stories, novels, poems, memoirs, and diaries—that instill ethical and social responsibility. Otherwise, those who attain power may exploit it for personal comfort and gain rather than for the well-being and happiness of others.

Conclusion

It is well known that technology is advancing at a breathtaking pace. One leg of this triadic development is children's literature, and the other is popular science. While popular science addresses research conducted in fields that constitute the foundation of technological developments, children's literature conveys this knowledge to the target audience from the preschool period onward through a variety of genres such as fairy tales, novels, stories, plays,

memoirs, travelogues, essays, and articles. The energy generated by this threefold structure directly influences the social, emotional, and cognitive development of children—who are the adults of tomorrow—and prepares them to become future-ready individuals.

According to this study, it can be concluded that children's literature has adapted to the digitalization process in education. In an era when digitalization continues at an overwhelming speed due to technological advancements, children's literature has kept pace with this transformation. Printed books in the traditional sense are rapidly being replaced by digital materials. Among the new generation of children's literature products, interactive books, audio and animated stories make reading more enjoyable and educational compared to traditionally printed materials. It is well established that individuals who are exposed to popular science books from an early age tend to show greater interest in technical topics and technological developments. For this reason, today's authors of popular science and children's literature bear greater responsibility.

While studies in the context of education and technology emphasize the importance of education, the integration of technology into education must also be highlighted. However, the use of technology in education is an issue that stakeholders must approach with great care. It is undeniable that access to information has become much easier with the use of basic technological tools such as mobile phones, tablets, and various applications in educational settings. Yet this positive development also entails certain risks. Extended screen time, attention deficits, physical inactivity leading to obesity, and vision and spinal disorders are among the most critical concerns.

The second conclusion highlights the role of popular science in developing children's scientific thinking skills. Popular science books and publications simplify complex scientific concepts, making them comprehensible for children and sustaining their sense of curiosity. This early introduction to science fosters scientific inquiry skills and allows children to use their out-of-class time productively through simplified educational content.

As a third conclusion, the role of technology in education can be emphasized. The appropriate use of technology in education is of great importance. In many countries today, there are restrictions on the use of certain technological tools—especially mobile phones—by children below a specific age. The ban on mobile phones in classrooms is a notable example. According to the shared opinion of educators, psychologists, and security experts, the premature use of such devices tends to do more harm than good.

It is also essential to acknowledge the following reality: technology has democratized access to information, individualized learning processes, and contributed to the principle of equal opportunity in education. With the advancement of artificial intelligence technologies, personalized learning experiences can now be provided, and educational materials tailored to individuals' interests and needs can be developed. This presents significant opportunities for disadvantaged groups. Visually or hearing-impaired children, for example, can access information without falling behind in their education thanks to AI-supported tools. Likewise, children living in rural areas can now access quality content through digital educational materials.

However, these opportunities presented by technology also carry inherent risks. Issues such as digital discrimination, inequality in access to information, cultural erosion, and weakened research skills among children reflect the negative side of digitalized education. AI-based systems that evaluate individuals based on parameters such as financial history, political orientation, or religious beliefs may, in the future, deepen issues of digital discrimination and social exclusion. Similarly, personalized information feeds may confine users to their own echo chambers, thereby limiting exposure to diverse perspectives and cultures and fueling societal polarization.

At this point, the critical role of children's literature becomes evident once again. Children's literature fulfills an important function in this context. While conveying popular science topics to the target audience, it also contributes to the process through texts that emphasize the proper and responsible use of technology. Stories that stimulate children's imagination and spark curiosity about exploration help cultivate a positive attitude toward technology. Texts that explain the harmful effects of technological misuse—such as atomic bombs and chemical weapons—are tailored to be age-appropriate. At the same time, articles highlighting the superiority of the human brain over technological tools, and emphasizing the central role of curiosity in all discoveries, are written by popular science authors and delivered to children through literature.

As is well known, children's literature does not merely impart information—it is also a powerful tool for values education, developing empathy, promoting respect for diversity, and instilling ethical awareness. Through children's literature, children learn how to use digital tools appropriately, how to access information, and how to evaluate technology critically. Moreover, children's literature serves as a bridge that enables children to maintain their cultural identities while embracing universal values.

Recommendations

This section presents several recommendations related to the topic addressed in the scope of the study.

- Publishers and authors should produce interactive, audio, and animated books that capture children's interest in an increasingly digital world. However, these products must be developed in accordance with pedagogical principles and should be filterable based on children's age groups and developmental stages.
- Popular science resources, especially in the fields of science, technology, engineering, and mathematics (STEM), should be presented to children through simple, engaging, and educational content. Teachers should integrate these resources into their lesson plans and implement projects aimed at enhancing students' scientific thinking skills.
- From the primary education level onward, children should be taught the correct use of digital tools, how to critically evaluate information sources, and issues related to digital ethics and privacy. These topics can be made more enjoyable through the support of children's literature works.
- Artificial intelligence applications should not only provide information to students but also encourage them to think critically, question, and create. These systems must be continuously monitored and updated to ensure compliance with ethical standards and to prevent any harm to children.
- Children's books that reflect national cultural values should be made more visible on digital platforms and integrated with technology to ensure effective delivery to children. This would help prevent children from becoming alienated from their cultural roots.
- Seminars, workshops, and online events for parents, teachers, and children should be organized to raise awareness about issues such as screen time, digital addiction, and information security.
- Infrastructure investments should be made to ensure equal access to digital resources for children living in rural and low-income areas. Free digital children's literature and popular science books should be made available to these groups.
- Prospective teachers should receive specialized training on how to produce digital materials, use popular science resources, and benefit from AI-assisted applications in educational contexts.

- Authors can present contemporary issues such as artificial intelligence, technology ethics, and digital discrimination through storytelling for children. This approach can help cultivate greater technological awareness among young readers.
- Organizing science festivals, children's book fairs, story competitions, and digital storytelling workshops can encourage children to participate in both literary and scientific production.

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