

The Potential of Artificial Intelligence as the Learning Ecosystem of the Future in Adult Religious Education

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Abstract

In today's information society, the rapid pace of technological advancements and the increasing complexity of information processing necessitate that individuals acquire a broader and more diverse set of skills. In this dynamic environment, adopting innovative approaches in education has become essential for individuals to develop their competencies and keep pace with the demands of the era. This study aims to examine the potential of artificial intelligence (AI) technologies in adult religious education and to evaluate how these technologies can contribute to learning processes. The research investigates whether AI systems function as mechanisms that completely replace the roles of religious educators or as tools that enhance existing educational processes. The study employs a qualitative methodology to understand the impact of AI in adult religious education. Initially, a detailed review of literature in cognitive sciences, AI technologies, computer sciences, and adult religious education was conducted. This review provided a comprehensive understanding of the development and applications of AI technologies in education while also identifying existing research gaps. The literature review also covered the historical role of AI in education and the innovations it offers today. Furthermore, the study analyzed the effectiveness of innovative applications such as intelligent tutoring systems, personalized learning platforms, gamification tools, and virtual reality technologies. The degree to which these systems address the individual needs of adult learners was evaluated through detailed analysis. The research also placed special emphasis on ethical considerations, addressing issues such as data privacy, human-machine interaction, and the limitations of AI in transmitting values. Proposed solutions to mitigate these challenges were presented. These ethical discussions also encompassed the question of how technology can align with a human-centered approach, forming an integral part of the study. All data were evaluated using thematic analysis, providing a comprehensive understanding of the role of AI in religious education. The findings indicate that AI technologies hold significant potential in adult religious education. However, these technologies cannot fully replicate the indispensable roles of human educators, such as fostering empathy, providing ethical guidance, and offering spiritual support. The most effective use of AI in education lies in its role as a complementary tool that enhances existing processes. Technological innovations, particularly gamification and virtual reality applications, demonstrate significant potential to make learning experiences more engaging. However, challenges were observed regarding adult learners' adaptation to these innovations. Personalized learning platforms offer structured support in areas such as text interpretation, exploring ethical issues, and learning ritual practices, effectively addressing individual learning needs. Nonetheless, the importance of human-centered pedagogical approaches in developing emotional intelligence, social belonging, and critical thinking has been reaffirmed. Therefore, AI technologies demonstrate potential in supporting personalized learning and enhancing student engagement in religious education. However, their integration must prioritize the preservation of pedagogical values and the reinforcement of educators' guiding roles. This ensures that technological advancements can be utilized while maintaining the human-centered nature of education.

Keywords

Religious Education, Adult Religious Education, Artificial Intelligence in Education, Personalized Learning Platforms, Digital Transformation in Education, Ethical Dimensions of AI

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Yetişkin Din Eğitiminde Geleceğin Öğrenme Ekosistemi Olarak Yapay Zekanın Potansiyeli

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Öz

Günümüz bilgi toplumunda teknolojik gelişmelerin hız kazanması ve bilgi işlem süreçlerinin karmaşıklaşması, bireylerin daha geniş ve çeşitli becerilere sahip olmasını gerektirmektedir. Bu dinamik ortamda, bireylerin kendilerini geliştirebilmeleri ve çağın gerekliliklerine ayak uydurabilmeleri için eğitim alanında yenilikçi yaklaşımların benimsenmesi önem kazanmıştır. Bu araştırma, yapay zekâ teknolojilerinin yetişkin din eğitimine sunduğu olanakları, sağladığı katkıları ve taşıdığı sınırlılığı ortaya koymayı amaçlamaktadır. Bunun yanı sıra yapay zekâ sistemlerinin din öğretmenlerinin rollerini bütünüyle dönüştüren bir mekanizma mı yoksa mevcut eğitim süreçlerini zenginleştiren ve geliştiren bir araç mı olduğu sorusu da ele alınmıştır. Çalışmada nitel bir yöntem kullanılmıştır. Araştırma kapsamında öncelikle bilişsel bilimler, yapay zekâ teknolojileri, bilgisayar bilimleri ve yetişkin din eğitimi alanlarındaki literatür detaylı bir şekilde incelenmiştir. Bu tarama, yapay zekâ teknolojilerinin gelişim süreci ve eğitimdeki uygulamalarıyla ilgili genel bir anlayış sunarken, aynı zamanda var olan araştırma boşluklarını belirlemeye olanak tanımıştır. Literatür incelemesi, yapay zekânın eğitim alanında tarihsel olarak nasıl bir rol oynadığını ve günümüzde hangi yenilikleri sunduğunu da kapsamaktadır. Ayrıca çalışma kapsamında akıllı öğretim sistemleri, kişiselleştirilmiş öğrenme platformları, oyunlaştırma araçları ve sanal gerçeklik teknolojileri gibi yenilikçi uygulamaların etkinliği incelenmiştir. Araştırmada ayrıca etik boyutlara özel bir vurgu yapılmış; veri gizliliği, insan-makine etkileşimi ve yapay zekânın değer aktarımındaki yetersizlikleri gibi konular ele alınmış ve bu sorunları gidermeye yönelik çözüm önerileri sunulmuştur. Etik boyutlara dair bu tartışmalar, teknolojinin insan merkezli bir yaklaşımla nasıl uyum sağlayabileceği sorusunu da kapsamış ve çalışmanın önemli bir bileşenini oluşturmuştur. Tüm bu veriler tematik analiz yöntemiyle değerlendirilerek yapay zekânın din eğitimindeki rolü hakkında kapsamlı bir anlayış elde edilmiştir. Araştırmadan elde edilen bulgular, yapay zekâ teknolojilerinin yetişkin din eğitiminde çok yönlü bir potansiyele sahip olduğunu göstermektedir. Ancak bu teknolojiler, insan öğreticilerin empati kurma, etik rehberlik sağlama ve manevi destek sunma gibi vazgeçilmez rollerini tam anlamıyla yerine getirememektedir. Yapay zekânın eğitimde etkili kullanım alanı, mevcut süreçleri tamamlayıcı bir araç olarak hizmet vermesidir. Teknolojik yenilikler, özellikle oyunlaştırma ve sanal gerçeklik uygulamaları sayesinde öğrenme deneyimlerini daha ilgi çekici hale getirme potansiyeli sunmaktadır. Bununla birlikte, yetişkin öğrencilerin bu yeniliklere adaptasyonu konusunda bazı zorluklar ortaya çıkmıştır. Kişiselleştirilmiş öğrenme platformları, metin yorumlama, etik meselelerin incelenmesi ve ritüel uygulamalarının öğrenilmesi gibi alanlarda yapılandırılmış bir destek sunarak bireysel öğrenme ihtiyaçlarına etkin bir şekilde yanıt vermektedir. Ancak duygusal zekâ, sosyal aidiyet ve eleştirel düşünce gibi unsurların geliştirilmesinde insan merkezli pedagojik yaklaşımların önemi bir kez daha vurgulanmıştır. Dolayısıyla yapay zekâ teknolojilerinin din eğitiminde bireyselleştirilmiş öğrenmeyi destekleme ve öğrenci katılımını artırma potansiyeli taşıdığı görülmektedir. Fakat bu teknolojilerin entegrasyonunda pedagojik değerlerin korunması ve eğitimcilerin rehberlik rollerinin desteklenmesi esas alınmalıdır. Böylelikle hem teknolojik yeniliklerden yararlanılabilir hem de eğitimin insan merkezli yapısı sürekli kılınabilir.

Anahtar Kelimeler

Din Eğitimi, Yetişkin Din Eğitimi, Eğitimde Yapay Zekâ, Kişiselleştirilmiş Öğrenme Platformları, Eğitimde Dijital Dönüşüm, Yapay Zekânın Etik Boyutları

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Introduction

The skills required for individuals to thrive in the modern information society are becoming increasingly complex. Living in a world driven by technology and information necessitates acquiring a broader and more intricate set of competencies. Digital learning support systems—such as online education programs, virtual tutors, and educational applications—facilitate learning through digital tools and platforms specifically designed to enhance the learning process. However, alongside these aids, it remains undeniable that learning is still a cognitively demanding activity requiring individuals to exert significant mental effort. Moreover, it is anticipated that individuals will continuously need to acquire new knowledge in the future. This is because knowledge and technology are evolving at a rapid pace, compelling individuals to engage in lifelong learning to adapt to these changes effectively.

Artificial intelligence (AI) technologies have become increasingly accessible, gaining commercial value and playing an ever more significant role in everyday applications. This development indicates that AI-powered technologies are no longer restricted to a specific group but are now widely accessible, acquiring substantial commercial value. AI has found applications in various fields, including healthcare, education, and finance, and is becoming an integral part of daily life. This highlights the central role AI plays in individuals' access to information and learning processes, with a growing number of people benefiting from these technologies.

Building on these developments, the impact of digital technologies on education is regarded as a fundamental transformation in which humans are no longer the sole authority in thinking and decision-making.¹ The finding indicates a partial reduction in the centrality of human cognitive and decision-making roles within the learning process. Advanced digital support systems have transformed computers from mere tools for providing information into active partners in the learning process. These systems now collaborate with humans to process data, conduct analyses, and support learning, assuming a significant and collaborative role in educational endeavours.

The increasing complexity of the information society and the rapid transformation of social structures have heightened adults' need for continuous learning in both their professional and personal lives. Consequently, religious values must be periodically revisited within the context of current debates and integrated into lifelong learning frameworks. Artificial intelligence-enhanced learning tools and digital advisors expedite and enrich the educational process by providing rapid, in-depth access to personalized content. Beyond individual satisfaction, these technologies foster social cohesion, empathy, and a sense of communal responsibility. Finally, adult learners' evolving needs are identified through a multilayered approach—drawing on online platform analytics, survey data, social media discourse, official and academic reports, and AI-driven analysis—thereby enabling the ongoing refinement of curricular content and pedagogical delivery to align with participants' expectations. This demand is further driven by

¹ John Erpenbeck - Werner Sauter, *So werden wir lernen! Kompetenzentwicklung in einer Welt fühlender Computer, kluger Wolken und sinnsuchender Netze* [This Is How We Will Learn! Skill Development in a World of Sentient Computers, Smart Clouds, and Meaning-Seeking Networks]. (Berlin, 2013), VI.

technological innovations, such as AI-supported learning tools and digital advisors, which are transforming traditional educational processes. Digital systems now enable faster and more efficient access to knowledge, automating some responsibilities traditionally held by educators. These technologies aim to enhance learning effectiveness through data collection and analysis. However, this integration raises critical concerns regarding individual privacy and ethical data handling. While digitalization offers significant benefits, ensuring data security and addressing privacy risks are crucial. Appropriate measures must be implemented to mitigate these challenges, enabling the effective and ethical use of digital technologies in education.

AI's role in education is often categorized into two functions: substitution and augmentation. Substitution refers to the replacement of traditional teaching methods with AI-driven systems, while augmentation focuses on enhancing existing educational practices to improve the overall learning experience. Rather than fully replacing teachers, adopting AI applications that support specific tasks proves more effective. By augmenting educators' roles, AI facilitates more efficient processes and enriches education. This approach emphasizes AI as a complementary tool that improves teaching quality while preserving the indispensable role of human educators.²

This study seeks to evaluate the potential of artificial intelligence in adult religious education by examining the balance between “substitution” and “augmentation” of instructor roles. In particular, the question of whether AI will fully assume the responsibilities of religious educators or primarily function as a supportive tool constitutes a secondary but equally critical focus of the research. In order to answer this question, the study evaluates current findings from cognitive science, AI research, computer science, and adult religious education through an interdisciplinary approach. Thus, drawing on data from various fields, a comprehensive analysis is provided regarding the roles that AI can undertake in adult religious education, offering a detailed assessment of how, in the medium term, AI may serve as a supportive tool in fulfilling some responsibilities of religious educators.

This study employs the literature review approach—a qualitative research method—to examine the potential of artificial intelligence as the learning ecosystem of the future in adult religious education, balancing its role between “substitution” and “augmentation” (support and extension) of instructor functions. During the research process, a literature review will be conducted to thoroughly analyse the existing body of knowledge in the field and establish a theoretical framework. The literature review will contribute to both the development of theoretical foundations and understanding of the current state of AI-based applications. Additionally, various examples of AI-based applications will be examined to evaluate their impact on educational processes and the opportunities they offer for adult religious education. The data obtained will be integrated using a holistic approach, with the aim of producing more substantial and comprehensive findings. This methodology facilitates a multidimensional exploration of the relationship between AI and adult religious education, ensuring that the topic is examined from a broad and nuanced perspective.

² Kirste, Moritz, “Augmented Intelligence – Wie Menschen mit KI zusammen arbeiten”, *lit-Themenband Künstliche Intelligenz Technologie / Anwendung / Gesellschaft* (Hrsg. Volker Wittpahl: Berlin: Springer Vieweg, 2019), 58-68.

A significant portion of the studies on this topic originates from Western sources, providing a substantial body of literature both theoretically and practically. In Turkey, research in this area remains in its early stages, with a relatively limited literature. Existing studies in the Turkish context provide only limited data on the application of AI technologies in religious education and their potential to address the specific needs of adult learners. The situation underscores the necessity for a more comprehensive examination of the impacts of AI-based technologies on adult religious education. A more comprehensive exploration of the relationship between AI and religious education in Turkey is essential within this context. Such research would contribute to the expansion of knowledge in the field and help elevate it to a level comparable to that of Western literature. This need necessitates intensified efforts in both theoretical and practical research. This study seeks to address the existing knowledge gap in this area and to examine AI's potential in adult religious education within the Turkish context.

1. Definitions, Historical Development, and Ethical Dimensions

Definitions of AI are broadly categorised into two main approaches. The first approach defines AI as a system centered on rational thinking. In these definitions, AI is considered as a logical, rational, and objective decision-making system. For instance, algorithms designed to determine the optimal solution to a problem or to perform logical decision-making processes are included in this category. The second category defines AI based on its ability to imitate or model human thought and behaviour. This approach acknowledges that human behaviour encompasses both rational and emotional components. Therefore, it emphasises that AI should account for rational and irrational aspects. In other words, definitions of AI sometimes rely on logic and rationality, while at other times, they consider the complex and emotional dimensions of human behaviour as the standard.³

While technological advancements have led to significant progress in AI, establishing a universal and fixed definition of “intelligent” performance remains a challenge. Furthermore, the increasing computational power of computer systems is insufficient to exhibit intelligent behaviours. The primary reason for this limitation lies in the fundamental differences between how the human brain operates and how computers function. Unlike computers, which process information sequentially, the human brain possesses the capacity for “parallel processing,” enabling it to perform numerous tasks simultaneously. This unique characteristic makes it difficult for computer systems to replicate or comprehend human intelligence fully.⁴

AI can be evaluated based on human cognitive potential. Drawing from the definition provided by Elaine Rich and Kevin Knight, AI is described as a discipline that explores how

³ Julian Stubbe, Jan Wessels, Guido Zinke, “Neue Intelligenz, neue Ethik? [New Intelligence, New Ethics?]”, (Herausgeber Prof. Dr. Volker Wittpahl), *iit-Themenband Künstliche Intelligenz Technologie | Anwendung | Gesellschaft*, (Springer Vieweg), (2019), 239-250; Moritz Kirste - Markus Schürholz, “Einleitung: Entwicklungswege zur KI.’ Künstliche Intelligenz: Technologie | Anwendung | Gesellschaft [Introduction: Development Paths to AI Artificial Intelligence: Technology | Application | Society]””, (Herausgeber Prof. Dr. Volker Wittpahl), *iit-Themenband Künstliche Intelligenz Technologie | Anwendung | Gesellschaft*, Berlin: Springer Vieweg, (2019), 21.

⁴ Kirste - Schürholz, “Einleitung: Entwicklungswege zur KI.’ Künstliche Intelligenz: Technologie | Anwendung | Gesellschaft”, 29-33.

computers can perform tasks that are currently better executed by humans.⁵ This definition does not confine intelligence to a universal capacity for thinking. Instead, it considers AI in the context of computers progressively advancing in problem-solving and decision-making processes traditionally unique to humans. A concrete example of this transformation can be seen in tasks such as machine translation, where computers have begun to produce successful results in areas previously handled exclusively by humans.⁶

AI is deeply connected to digital transformation, Industry 5.0, and Big Data,⁷ yet its roots extend to a rich academic history. A key milestone is Alan Turing's 1936 concept of the Universal Machine, which laid the theoretical foundation for AI research and its principles.⁸ Technological advancements, particularly in hardware, have driven AI's evolution. Moore's Law, describing the doubling of processing power in integrated circuits over time, significantly accelerated AI's development during the digital revolution.⁹ In the 1960s, despite limited computational power, early AI systems made notable progress. Programs such as STUDENT, ELIZA, and SHRDLU achieved success in natural language processing, marking milestones in AI's emergence as a disciplinary field.¹⁰

Intelligent software has made remarkable progress, often surpassing human capabilities in key areas. A significant milestone was IBM's Deep Blue defeating chess champion Garry Kasparov in 1997, showcasing AI's potential in strategic thinking and problem-solving.¹¹ In 2011, IBM's Watson gained recognition by winning Jeopardy!, leveraging advanced natural language processing and large-scale data analysis. In 2014, the humanoid robot Pepper, created by Amit Kumar Pandey and Rodolphe Gelin, demonstrated AI's role in social interaction with its emotional intelligence and natural communication capabilities.¹² Today, digital voice assistants

⁵ Elaine Rich - Kevin Knight, *Artificial intelligence*, (New York: McGraw-Hill, 1991), 3.

⁶ Silvia Lipp, Gernot Dreisiebner, Michaela Stock, "Das Potenzial von Learning Analytics in der Berufsbildung [The Potential of Learning Analytics in Vocational Education and Training]", *50 Jahre Berufsbildungsforschung im Spannungsfeld von Wissenschaft, Politik und Praxis*. (Hrsg. Löffler, Roland; Schlögl, Peter; Schmölz, Alexander), (wbv Media GmbH & Co. KG, Bielefeld), (2021), 173; Wolfgang Hesse, "Das Zerstörungspotenzial von Big Data und Künstlicher Intelligenz für die Demokratie [The Destructive Potential of Big Data and Artificial Intelligence for Democracy]", *Informatik Spektrum* 43.5, (2020), 343-345.

⁷ Hesse, "Das Zerstörungspotenzial von Big Data und Künstlicher Intelligenz für die Demokratie", 339-346.

⁸ Alan Mathison Turing, "On computable numbers, with an application to the Entscheidungsproblem", *J. of Math* 58.345-363: 5. (1936), 232.

⁹ Hesse, "Das Zerstörungspotenzial von Big Data und Künstlicher Intelligenz für die Demokratie", 339.

¹⁰ Ernst Buchberger, *Sprachverstehen in der Artificial Intelligence* [Language Understanding in Artificial Intelligence], (Stuttgart: Teubner), (1984), 138-145.

¹¹ Philip Bresinsky, Hans-Christian Gräfe - Michael Schiessl, "Wie die Maschine uns narrt [How the Machine Deceives Us]", *Transfer* 4, (2019), 113.

¹² Gunther Friedl, "Künstliche Intelligenz im Controlling [Artificial Intelligence in Controlling]", *Controlling* 31.5, (2019), 35; Kathrin Reger-Wagner - Sven Kruschel, "Humanoide Roboter: Vom Maschinenwesen über Dialogpartner zum Markenbotschafter [Humanoid Robots: From Mechanical Beings to Dialogue Partners and Brand Ambassadors]", *Jenaer Beiträge zur Wirtschaftsforschung*, (2020/1), 5-12.

like Apple's Siri¹³ and Google Assistant are integral to daily life, performing tasks, responding to commands, and acting as personal assistants, reflecting AI's widespread adoption.¹⁴

Despite remarkable advancements, AI systems still fall short of fully exhibiting “intelligent” behaviours and face notable limitations. Marvin Minsky's critiques highlighted these shortcomings, emphasizing that early AI systems relied on simple algorithms focused on problem-solving without significant cognitive depth. He argued that such systems merely reverted to previous decisions and tested alternative solutions when encountering errors, lacking the fundamental human ability to analyze root causes and derive sophisticated solutions. Minsky noted that while these systems might be technically effective, they remain cognitively superficial. This critique remains relevant today, as modern AI systems still struggle to replicate human-like thinking, adaptability, and intuitive problem-solving, highlighting the significant challenges AI faces in achieving true human intelligence.¹⁵

AI research has evolved into a broad interdisciplinary field by focusing on numerous sub-problems. One of the primary goals of this research is to represent knowledge effectively and generate solutions through appropriate search algorithms. Within this framework, AI has developed various sub-disciplines tailored to different application areas. One prominent subfield is *Pattern Recognition*, which focuses on identifying and classifying visual data such as handwriting, faces, or objects.¹⁶ *Natural Language Processing* (NLP) focuses on enabling computers to understand, process, and generate human language. This field encompasses a wide range of applications, including machine translation, sentiment analysis, and text classification.¹⁷ *Question-answering systems* have garnered significant attention, particularly with developing systems like IBM Watson. These systems focus on simulating human-like processes for accessing and understanding information.¹⁸ *Computational Creativity* involves research focused on modelling and simulating human creativity. Notably, studies in this field aim to enhance machines' creative capacity by modelling intrinsic motivational factors such as curiosity.¹⁹ These subfields of AI illustrate the technology's potential to provide solutions to complex problems across various disciplines.

AI research extends beyond technical advancements, delving into philosophical and ethical dimensions. A key focus is the moral responsibilities of intelligent systems capable of autonomous decision-making and their societal impacts. Studies explore how AI can simulate

¹³ Friedl, “Künstliche Intelligenz im Controlling”, 35.

¹⁴ Jürgen Anke, Uwe Fischer - René Lemke, “Integration digitaler Sprachassistenten in den Kundenservice am Beispiel der Stadtwerke Leipzig [Integration of Digital Voice Assistants in Customer Service: The Example of Stadtwerke Leipzig]”, *Digitalisierung von Staat und Verwaltung*. Bonn: Gesellschaft für Informatik e.V.. PISSN: 1617-5468. Münster, (2019), 25-36.

¹⁵ Marvin Minsky, “Why People Think Computers Can't.”, *AI Magazine* 3.4, (1982), 13-14.

¹⁶ Peter Altmeyer, “Mustererkennung (Pattern-Recognition)”, *Dermatologische Differenzialdiagnose: Der Weg zur klinischen Diagnose*, (2007), 475-517.

¹⁷ Franziska Meyer, “Sprachmodelle im Natural Language Processing [Language Models in Natural Language Processing]”, *Seminararbeit*, (2020), 3-21.

¹⁸ Falk Pollok, Ulrik Schroeder - Mohamed Amine Chatti, “PalmQA: Ein Frage-Antwort-Ensemble für selbstgesteuertes Lernen [PalmQA: A Question-Answer Ensemble for Self-Directed Learning]”, *Gesellschaft für Informatik*, (2017), 51-62.

¹⁹ Dieter Mersch, “Kreativität und Künstliche Intelligenz: Einige Bemerkungen zu einer Kritik algorithmischer Rationalität [Creativity and Artificial Intelligence: Some Remarks on a Critique of Algorithmic Rationality]”, *Zeitschrift für Medienwissenschaft* 11.21-2, (2019), 65-74.

human-like ethical reasoning, ensuring systems make decisions aligned with human values while adhering to principles of transparency, fairness, and accountability. Ethical concerns include the risks of AI exacerbating bias, inequality, or discrimination. Research in this area seeks to develop AI as a responsibly applied entity, integrating ethical considerations to address societal challenges and move beyond being a mere technological tool.²⁰

2. Conceptual Foundations: Turing, Searle, and the Strong-Weak AI Distinction

Artificial intelligence is a transformative technology distinguished by its ability to drive change on both individual and societal levels. However, a comprehensive understanding of this potential requires an examination of AI's historical development and theoretical foundations. In this context, the works of pioneering thinkers such as Alan Turing and John Searle play a crucial role in understanding the fundamental concepts and limitations of AI.

Alan Turing, a pivotal figure in establishing the theoretical foundations of modern computer science, gained recognition for developing the Turing Machine in the 1930s. By posing the question, "Can machines think?" Turing addressed one of the foundational questions of AI. In line with this inquiry, he introduced the *Turing Test*, which employs human behaviour as a primary reference point for defining AI. The *Turing Test* evaluates whether a machine possesses human-like thinking capabilities. In this test, an evaluator engages in written communication with both a human and a machine and attempts to distinguish which participant is human. If the evaluator perceives the machine as human, the machine is considered to have passed the test.²¹ Turing's work provided a significant framework for understanding the potential of AI to develop human-like intelligence and behaviour. This framework has shaped the theoretical foundations of contemporary AI research. Turing's ideas have been influential not only in theoretical discussions but also in practical domains. In educational technologies, for instance, developing personalised learning experiences and optimising individual learning processes represent practical manifestations of Turing's theories.²²

John Searle developed a critical perspective on the capacity of AI to achieve human-like thought and raised significant objections to the *Turing Test*. Searle argued that a machine's ability to perform symbolic operations does not demonstrate meaningful thinking or genuine "understanding." He illustrated this view through his famous *Chinese Room* experiment, introduced in 1980. The *Chinese Room* experiment is based on a scenario in which an individual who does not understand Chinese uses an instruction manual to match Chinese symbols. By correctly combining the symbols, the individual appears, from an external perspective, to understand Chinese. However, since the individual lacks comprehension of the symbols'

²⁰ Andreas Burkert, "Die Ethik und die Gefahren der künstlichen Intelligenz [The Ethics and Dangers of Artificial Intelligence]", *ATZ-Automobiltechnische Zeitschrift* 119.11, (2017), 8-13; Joachim Hertzberg, "Was ist KI und welche ethischen Fragen stellt ihre Anwendung? [What is AI, and What Ethical Questions Does Its Application Raise]", (Hrsg. Otten, Gabriele - Jutta Paessens), *Künstliche Intelligenz (KI) und Human Enhancement*, (2022), 9-13; Ahmet Efe, "Yapay Zekâ Risklerinin Etik Yönünden Değerlendirilmesi [An Ethical Evaluation of Artificial Intelligence Risks]", *Bilgi ve İletişim Teknolojileri Dergisi* 3/1 (Haziran 2021), 1-24.

²¹ Alan Mathison Turing, "Computing Machinery and Intelligence", *Mind* 59/October (1950), 433-436.

²² Friedl, "Künstliche Intelligenz im Controlling.", 35.

meanings, the process does not constitute meaningful cognitive activity. Through this experiment, Searle demonstrated that a machine's ability to perform successful symbolic operations does not prove it possesses the ability to think or understand like a human.²³ Searle's critiques raised fundamental questions about whether AI can possess human-like cognitive processes and whether symbolic manipulation aligns with the concept of "understanding." These debates remain significant today, as they probe how structurally different AI systems are from human intelligence and how these differences impact processes of thinking and understanding. The contributions of Turing and Searle provide contrasting perspectives in AI discussions, offering a critical framework for understanding the philosophical, ethical, and practical foundations of this discipline.²⁴

Another significant contribution of John Searle to the field of AI is his distinction between *strong AI* and *weak AI*.²⁵ This distinction provides a fundamental framework for understanding and evaluating the capabilities of AI systems, and it remains relevant today.

- *Strong AI*: This concept is based on the assumption that a machine can not only imitate human behaviour but also think, understand, and learn consciously. From this perspective, *strong AI* systems could potentially share the essential attributes of human intelligence, such as consciousness, intuition, and the ability to create meaning. The notion of *strong AI* goes beyond attributing merely functional activity to machines, suggesting that they could become genuine cognitive agents. However, Searle adopted a critical stance toward this view, arguing that current technologies lack the capacity for conscious thought and understanding.²⁶

- *Weak AI*: Represents the understanding that a machine is a tool programmed to solve specific problems or perform particular tasks. According to this view, AI systems merely simulate human thought processes. However, they lack the underlying capabilities of consciousness, understanding, or original thinking. *Weak AI* is effective, particularly in technical tasks such as data analysis, pattern recognition, and process automation. Yet, the operations performed by these systems are limited to symbolic manipulation.²⁷

Despite achieving remarkable success in specific tasks, contemporary AI systems have yet to attain the level of consciousness or general intelligence required to fully pass the *Turing Test*. This limitation necessitates the use of more narrowly focused methods for evaluating current systems. These methods are typically restricted to specific conversational topics and must meet the claims associated with *strong AI*.²⁸ In this context, *strong AI* remains a theoretical goal. *Strong AI* is defined as systems with a general intelligence capacity similar to humans, capable of operating flexibly and independently across various domains, not just in specific tasks. Such

²³ John. R. Searle, "Minds, Brains, and Programs", *Behavioral and Brain Sciences* 3 (3), (1980), 417-457.

²⁴ Jürgen J. Searles Kritik am Funktionalismus — Eine Untersuchung des Chinesischzimmers [J. Searle's Critique of Functionalism: An Examination of the Chinese Room]", *Zeitschrift für Allgemeine Wissenschaftstheorie* 22, (1991), 321-336.

²⁵ Searle, "Minds, Brains, and Programs", 417.

²⁶ Searle, "Minds, Brains, and Programs", 417-424; Igor Furgel, "Künstliche Intelligenz als System [Artificial Intelligence as a System]", 2022, 22-36. <http://furgel.com/index-Dateien/Page336.html>

²⁷ Searle, "Minds, Brains, and Programs", 435-455; Furgel, "Künstliche Intelligenz als System", 9-22.

²⁸ Kirste - Schürholz, "Einleitung: Entwicklungswege zur KI. Künstliche Intelligenz: Technologie| Anwendung| Gesellschaft", 21-35.

systems have the potential to embody qualities unique to human intelligence, such as conscious thought, problem-solving, and inference-making. However, the vast majority of AI technologies developed today fall within the scope of *weak AI*. *Weak AI* refers to systems that function effectively within a narrow domain, providing solutions to predefined problems but lacking the capacity for conscious thought or general intelligence.²⁹

Contemporary scientific and technological advancements offer a substantial foundation for achieving the goal of *strong AI*. Advanced algorithms, increased computational power, and expanding data repositories enable AI systems to perform more complex tasks. However, the primary challenges in achieving *strong AI* revolve around how concepts such as consciousness, understanding, and general intelligence can be technically implemented. Consequently, the notion of *strong AI* remains both a theoretical objective and a central focus of scientific debate.³⁰

3. Integration, Pedagogical Approaches, and Sub-Disciplinary Perspectives

Artificial Intelligence and Education has emerged as a critical research domain in today's era of rapid digital transformation, driven by the integration of technology into educational processes. This field examines how AI technologies can enhance education by transforming teaching methods and reshaping traditional approaches. Beyond the technical design of AI systems, this interdisciplinary domain addresses the pedagogical, ethical, and societal implications of AI in education. It analyzes the impact of AI-based tools on teachers and students, focusing on their role in personalizing and improving learning processes. Applications like adaptive learning systems, automated assessment tools, and digital teaching assistants showcase AI's transformative potential. These technologies not only reduce teachers' workloads, but also address students' individual needs and enhance the overall effectiveness of education.³¹

Furthermore, the field of AI and education extends beyond pedagogical objectives, offering a broad perspective that considers the ethical, social, and cultural dimensions of AI systems. Research in this domain examines the impacts of AI-based tools across various educational levels, ranging from early childhood education to higher education and adult learning. These studies contribute significantly to the field by providing theoretical and practical insights into how AI applications can be designed and implemented to meet individual learning needs and optimise learning processes.³²

One of the most prominent applications in the field of AI and education is software systems known as intelligent tutoring systems (ITS). These systems are designed to support individuals' learning processes and, to some extent, take on the responsibilities of teachers. Intelligent tutoring systems have the capacity to provide personalized and adaptive learning experiences

²⁹ Mathias Weber, - Florian Buschbacher, *Künstliche Intelligenz- Wirtschaftliche Bedeutung, gesellschaftliche Herausforderungen, menschliche Verantwortung* [Artificial Intelligence: Economic Significance, Societal Challenges, and Human Responsibility], (Bitkom e. V., DFKI, Berlin, Kaiserslautern), (2017), 29-31.

³⁰ Utz Schäffer, "KI sehe ich als zweite Welle der Digitalisierung [I see AI as the second wave of digitalization]", *Controlling & Management Review* 63, (2019), 18-23.

³¹ Lijia Chen, Pingping Chen - Zhijian Lin, "Artificial intelligence in education: A review.", *Ieee Access* 8, (2020), 75264-75266.

³² Katja Buntins, Insa Reichow - Faisal Rashid, "Eine Typologie zur Analyse des Einsatzes von KI-Methoden in der beruflichen Bildung [A Typology for Analyzing the Use of AI Methods in Vocational Education and Training]", *BWP* 53-1, (2024), 13-17. www.bwp-zeitschrift.de/dienst/publikationen/de/19392

by adapting to users' learning behaviours and performance. Such systems highlight AI's potential to provide personalized learning support and adapt to individual needs. Examples of intelligent tutoring systems that aim to deliver personalized learning experiences across various fields include *AutoTutor*, which utilizes natural language processing capabilities, and *Writing Pal*, which automatically analyses the quality of written texts.³³

Intelligent tutoring systems, while often associated with *strong AI* technologies, have yet to reach the capacity to fully replace human teachers. In education, they are typically utilised as supportive or complementary tools in teaching and learning processes. E-learning experts, particularly in the context of adult education and digital learning, view the large-scale adoption of these systems as unlikely and note that their current use needs to be improved in scope. To facilitate the broader and more effective implementation of intelligent tutoring systems in education, it is necessary to refine pedagogical approaches and enhance their acceptability among users.³⁴

Another significant application in AI and education is game-based learning, among the most promising technologies in education. This method holds the potential to enhance learners' motivation and foster engagement in learning processes, playing a particularly crucial role in individual learning experiences. For instance, games can strengthen self-directed learning motivation and thereby increase the willingness to engage in lifelong learning. However, in the context of adult education, this potential still needs to be utilised. Research and applications in this area are limited, and the full range of possibilities for employing game-based learning in adult education has yet to be explored. For broader adoption and effective integration, more comprehensive research and carefully planned implementations are required.³⁵

A significant barrier to the adoption of game-based learning in adult education is the negative perception many adults hold regarding the connection between games and learning.

³³ Arthur C. Graesser, "Conversations with AutoTutor help students learn.", *International Journal of Artificial Intelligence in Education* 26, (2016), 124-132; Niels Pinkwart, - Susan Beudt, "Künstliche Intelligenz als unterstützende Lerntechnologie [Artificial Intelligence as a Supportive Learning Technology]", *Fraunhofer-Institut für Arbeitswirtschaft und Organisation IAO*, (2020), 2-8; Graesser, "Conversations with AutoTutor help students learn", 124-132; Gabi Netz - Claudia Zanker., "'Tutorielle Begleitung im vhs-Lernportal: Online lernen—aber nicht allein.' weiter bilden [Tutoring Support in the vhs Learning Portal: Learning Online—But Not Alone]", *Die Zeitschrift für Erwachsenenbildung* 30.1, (2023), 37-39.

³⁴ Laura Fricke - Lena Zeller, "Tutorielle Begleitung als Element der propädeutischen Lehr-Lernseinheit 'Wissen schafft Praxis [Tutoring Support as an Element of the Propaedeutic Teaching-Learning Unit 'Knowledge Creates Practice']", (Hrsg. Klages, Benjamin, Bonillo, Marion, Reinders, Stefan - Bohmeyer, Axel) *Gestaltungsraum Hochschullehre. Potenziale nicht-traditionell Studierender nutzen*. Berlin: Budrich UniPress Ltd., (2015), 253-266. URN: urn:nbn:de:0111-pedocs-114466 -; Daniela Hartmann, "Künstliche Intelligenz im DaF-Unterricht? Disruptive Technologien als Herausforderung und Chance [Artificial Intelligence in Teaching German as a Foreign Language (DaF): Disruptive Technologies as a Challenge and Opportunity]", *Informationen Deutsch als Fremdsprache*, 48(6), (2021), 683-695; Orhan Kemal Çorbacı, "Din Eğitiminde Yapay Zekâ Uygulamalarına İlişkin Teknolojik Ve Pedagojik Yaklaşımlar: Zeki Öğretim Sistemleri (ZÖS) Örneği [Technological and Pedagogical Approaches to Artificial Intelligence Applications in Religious Education: The Example of Intelligent Tutoring Systems (ITS)]", *Din Eğitiminde Birey ve Ahlak*, Ed. H. Er (İstanbul, 2023), 30.

³⁵ Mark Bormann, Katharina Heyligers, Michael Kerres - Jörg Niesenhaus, "Spielend Lernen! Spielend Lernen? Eine empirische Annäherung an die Möglichkeit einer Synthese von Spielen und Lernen [Learning Through Play! Learning Through Play? An Empirical Approach to the Possibility of Synthesizing Play and Learning]", *Workshop Proceedings der Tagungen Mensch & Computer, DeLFI und Cognitive Design*, Berlin: Logos Verlag. ISBN: 978-3-8325-2007-6, (2008), 339-343; Son Le - Peter Weber, "Game-Based Learning-Spielend Lernen? [Game-Based Learning: Learning Through Play]", *Lehrbuch für Lernen und Lehren mit Technologien* (Berlin: epubli GmbH), (2011), 219-228.

For young adults especially, learning is seen as a serious, effort-driven activity, making it difficult to reconcile with gaming. This perception poses a challenge to the widespread use of game-based learning approaches. Similarly, integrating AI into education faces resistance, particularly in adult learning contexts, where there is skepticism about replacing traditional teaching methods and educators. While game-based learning and AI technologies have the potential to enhance educational environments, their complete substitution for traditional methods is currently impractical for adult learners. Effective integration of these technologies requires a strategic approach that considers not only technical factors but also pedagogical and psychological dimensions. These tools are better positioned as supportive elements that enhance, rather than replace, existing educational methods, particularly for adults.³⁶

Contemporary teaching and learning processes have increasingly integrated computer-supported learning environments as a constant feature. These digital platforms offer significant potential for enhancing teaching and learning processes, a possibility that is unlocked through the analysis of data generated within these platforms. Learning analytics focuses on leveraging this data to provide meaningful insights into educational processes for teachers and students. The primary goal of learning analytics is to optimise instructional processes and make learning experiences more efficient based on the collected data.³⁷ Sven Knöfel and Oliver Seils highlight the significant contributions of learning analytics within the context of adult education, mainly through the “Connected Personal Learning” model. This model promotes the use of data-driven analyses to understand learning processes better. LA enables teachers and students to gain detailed insights into learning activities, performance, and developmental progress. This capability facilitates personalising learning experiences, allowing individuals to achieve their goals more efficiently.³⁸

³⁶ Günther Dohmen, “Zum Verhältnis von “natürlichem” und organisiertem Lernen in der Erwachsenenbildung [On the Relationship Between “Natural” and Organized Learning in Adult Education]”, *Kommunikation in Lehr-Lern-Prozessen mit Erwachsenen* (Paedagogische Arbeitsstelle des DVV Frankfurt/M.), (1991), 133-147; Klaus Peter Treumann, Sonja Ganguin, Markus Arens, *E-Learning in der beruflichen Bildung* [E-Learning in Vocational Education and Training], (VS Verlag für Sozialwissenschaften), (2012), 180-275; Una Ponsold, “Planung, Entwicklung und Einsatz von Serious Games in der beruflichen Weiterbildung [Planning, Development, and Use of Serious Games in Vocational Training]”, *Magazin Erwachsenenbildung.at* 44/45, (2022), 1-7; Erich Herber, Bernhard Schmidt-Hertha - Sabine Zauchner-Studnicka, “Erwachsenen- und Weiterbildung. Technologieeinsatz beim Lernen und Lehren mit Erwachsenen [Adult and Continuing Education: The Use of Technology in Adult Learning and Teaching]” (Hrsg. Martin Ebner, Sandra Schön), *Lehrbuch für Lernen und Lehren mit Technologien*, (2013), 385-393; Denise Klinge, “Lehrende Algorithmen – spielend-behavioristische Lernanregungen von Apps als digitale Technologien [Teaching Algorithms: Playfully Behaviorist Learning Stimuli from Apps as Digital Technologies]”, (Hrsg. Franz, Julia, vd.), *Digitalisierung in der Erwachsenenbildung-Hessische Blätter für Volksbildung* 3, (2020), 65-73.

³⁷ Alessandro Barberi, Petra Missomelius - Christian Swertz, “Editorial 1/2018: Educational Data Mining und Learning Analytics: Möglichkeiten und Grenzen der Vermessung des digitalen Lernens [Editorial 1/2018: Educational Data Mining and Learning Analytics: Opportunities and Limitations of Measuring Digital Learning]”, *Medienimpulse* 56.1, (2018), 1-14; Julia Franz - Steffi Robak, “Digitalisierung in der Erwachsenenbildung – zur Einleitung in den Themenschwerpunkt [Digitalization in Adult Education: An Introduction to the Thematic Focus]”, *Hrsg. Franz, Julia, vd., Digitalisierung in der Erwachsenenbildung (Hessische Blätter für Volksbildung* 3), (2020), 4-9.

³⁸ Sven Knöfel - Oliver Seils, “Szenarien für die Entwicklung der Erwachsenenbildung: Ein Ausblick auf das Interaktionsdesign im Jahr 2025 [Scenarios for the Development of Adult Education: A Look at Interaction Design in 2025]”, (Hrsg. Schönebeck - Manfred-Pellert, Ada), *Von der Kutsche zur Cloud – globale Bildung sucht neue Wege* (Das Beispiel der Carl Benz Academy), (2016), 297-299.

Although learning analytics relies on automated analysis methods, human judgment is expected to remain an indispensable element in teaching processes. While data collection and processing occur through technological tools, teachers' expertise is crucial for interpreting and integrating this data into teaching and learning processes. For instance, teachers can use insights derived from analytics to reorganise lesson plans, revise learning objectives, and provide personalised guidance to students.³⁹ In addition, the use of insights offered by learning analytics and their integration into learning processes is primarily left to the student's responsibility. This gives students greater control over their learning processes and adapt data-driven approaches to their needs and preferences. Students can develop their learning strategies by creating more effective learning experiences. This approach aims to foster active participation from teachers and students, promoting the creation of a personalised and interactive learning environment.⁴⁰

Learning analytics highlights technology as a supportive mechanism that complements human roles in educational processes. This approach optimises educational experiences by providing teachers and students with in-depth insights into learning processes. While technology assumes a “complementary” function to make teaching processes more effective, the core roles in learning and teaching remain centered on human factors. As a critical component of the digital transformation in education, learning analytics enables teachers to improve their lessons and develop strategies tailored to students' needs. Simultaneously, students can manage their learning processes and personalise their learning experiences using data-driven insights. Teachers can utilise data from these technologies to better analyse students' strengths and weaknesses, offering more meaningful feedback. However, specific key considerations must be addressed to ensure the effective implementation of learning analytics. First, data-driven decision-making processes must be grounded in pedagogical principles. Additionally, adherence to ethical standards and educational values is essential. Particular attention must be paid to student privacy and data security, ensuring that these technologies support a human-centered approach—where technology functions as a tool rather than an end, learning and teaching are tailored to individuals' cognitive, social, and emotional needs, and human interaction, autonomy, and privacy are prioritised.⁴¹

Although research on AI and education has yet to achieve the desired level of integration of innovative technologies in teaching, it provides a substantial foundation for the future advancement of this field. Studies in the literature focus on analysing the current state and examining the potential impacts of hypothetical scenarios, highlighting that AI applications primarily play a supportive and augmentative role in educational processes. Key benefits of AI

³⁹ Corrine Büching, Dana-Kristin Mah, Stephan Otto, Prisca Paulicke - Ernst A. Hartman, “Learning Analytics an Hochschulen [Learning Analytics in Higher Education]”, Hrsg. Wittpahl, Volker: *Künstliche Intelligenz* (Berlin: Springer), (2019), 155-159.

⁴⁰ Knöfel - Seils, “Szenarien für die Entwicklung der Erwachsenenbildung: Ein Ausblick auf das Interaktionsdesign im Jahr 2025”, 299-300.

⁴¹ Michael Kerres, - Katja Buntins Burtins, “Erwachsenenbildung in der digitalen Welt: Handlungsebenen der digitalen Transformation [Adult Education in the Digital World: Action Levels of Digital Transformation]”, (Hrsg. Franz, Julia, vd.), *Digitalisierung in der Erwachsenenbildung-Hessische Blätter für Volksbildung* 3, (2020), 11-21; Lipp, Dreisiebner - Stock, “Das Potenzial von Learning Analytics in der Berufsbildung”, 173-183.

in education include reducing teachers' workloads, personalising learning processes, and enhancing students' learning experiences.⁴² However, for technological innovations to reach their full potential, comprehensive evaluations must be conducted from a technical perspective and from pedagogical, ethical, and societal angles. In this context, interdisciplinary collaboration and the development of concrete applications are critically important. To achieve a more significant impact on the relationship between AI and education, technological advancements must be integrated into educational contexts to preserve the complementary role of human-based teaching practices. Within this framework, it is anticipated that the synergy between AI and education could lead to more effective outcomes in the future.⁴³

4. Augmentation Strategies, Pedagogical Roles, and the Context of Adult Religious Education

AI holds significant potential in educational processes, either by fully assuming teachers' responsibilities or by supporting them. Specifically, AI contributes by transforming traditional classroom roles, alleviating teachers' workload in time-consuming and repetitive tasks, monitoring student performance, conducting assessments, and providing feedback. Moreover, with its capabilities for in-depth data analysis, AI enables teachers to track students' learning processes and offer personalised guidance more effectively. However, the notion that AI could completely replace human teachers remains controversial. Human educators play an indispensable role in areas requiring emotional intelligence, such as empathy, motivation, value transmission, and the development of social skills.⁴⁴

In adult religious education, the interaction between augmentation (enhancement, improvement, and support) and substitution strategies represents a compelling topic of discussion regarding integrating modern technological advancements into educational processes. From a cognitive science perspective, it is evident that systems referred to as *strong AI*, capable of fully replicating human intelligence, have yet to be developed. However, significant progress has been made, mainly since the late 20th century, in systems classified as *weak AI* that effectively perform specific tasks. These advancements have had notable impacts in the field of education.⁴⁵

Among the tools developed in AI and Education, intelligent tutoring systems, game-based learning, and learning analytics stand out. These tools are designed to support personalised learning experiences, enhance the effectiveness of instructional materials, and provide detailed data analyses for learning processes. Rather than replacing teachers, these technologies aim to

⁴² Fabian Zehner, "Künstliche Intelligenz in der Bildung. Ihr Potenzial und der Mythos des Lehrkraftroboters [Artificial Intelligence in Education: Its Potential and the Myth of the Teacher Robot]", *Schulmanagement* 50-2, (2019), 8-11.

⁴³ Thomas Knaus, "Künstliche Intelligenz und Pädagogik – ein Plädoyer für eine Perspektiverweiterung [Artificial Intelligence and Pedagogy: A Plea for a Broader Perspective]", *Ludwigsburger Beiträge zur Medienpädagogik* 24, (2024), 1-26.

⁴⁴ Douglas C. Engelbart, "Augmenting human intellect: A conceptual framework.", *Augmented Education in the Global Age*. (Routledge), (2023), 13-20.

⁴⁵ Moritz Kirste, "Augmented Intelligence – Wie Menschen mit KI zusammen arbeiten [Augmented Intelligence: How Humans Collaborate with AI]", (Hrsg. Volker Wittpahl), *iit-Themenband Künstliche Intelligenz Technologie | Anwendung | Gesellschaft*, Berlin: Springer Vieweg, (2019), 60; Kirste - Schürholz, "Einleitung: Entwicklungswege zur KI: Künstliche Intelligenz: Technologie| Anwendung| Gesellschaft", 21.

complement and support their functions. For instance, an intelligent tutoring system can analyse a student's learning pace and needs, offering personalised recommendations. However, it cannot fully substitute a teacher's pedagogical expertise and guidance skills. Similarly, game-based learning tools make learning processes more engaging and motivating, but they cannot replace teachers in fostering complex social and emotional skills.⁴⁶

These examples highlight the transformative potential of AI in education while underscoring that resistance to such technologies, particularly in adult religious education, must be reconsidered in light of the demands of the digital age. However, effectively defining the role of AI in education requires aligning technological capabilities with educational objectives. Using AI as a supportive tool in instructional processes necessitates prioritising augmentation strategies over complete substitution. Augmentation strategies are considered foundational for pedagogical and technological transformation in educational processes.⁴⁷ Augmentation strategies provide an approach in academic research and represent a preparatory phase for transitioning to substitution strategies. However, challenges such as the acceptance of AI systems by educators and students, the adequacy of technological infrastructure, and ethical responsibilities emerge as significant issues in this process. Addressing these challenges could lay the groundwork for a more realistic substitution strategy.⁴⁸

The limitations of *strong AI* technologies do not necessitate the exclusion of AI from educational processes. On the contrary, purpose-built weak AI systems provide significant support in personalised learning experiences, data-driven feedback mechanisms, and adaptive teaching methods. In the context of the digitalisation of adult religious education, the supportive and enhancement-oriented impact of these systems on learning processes is particularly noteworthy. However, it must be emphasised that human judgment and pedagogical skills remain indispensable in education. The role of AI in educational processes should primarily be addressed within the framework of augmentation strategies to create a balanced and sustainable model for educators and learners.⁴⁹

5. Adult Religious Education: Personalized Learning, Technological Innovations, and Human-Centered Approaches

Adulthood extends beyond merely surpassing a certain age; it denotes the phase in which an individual's capacity for autonomous decision-making and assumption of responsibility matures, and the ability to plan and direct one's own learning processes is acquired.⁵⁰ Within this stage, religious education entails the critical reevaluation and deepening of one's

⁴⁶ Kirste, "Augmented Intelligence – Wie Menschen mit KI zusammen arbeiten", 58-68.

⁴⁷ Wenke Apt - Kai Priesack, "KI und Arbeit – Chance und Risiko zugleich [AI and Work – Both an Opportunity and a Risk]", (Herausgeber Prof. Dr. Volker Wittpahl), *iit-Themenband Künstliche Intelligenz Technologie | Anwendung | Gesellschaft*, (Springer Vieweg), (2019), 224-234.

⁴⁸ Christoph Meier, Sabine Seufert - Josef Guggemos, "Arbeitswelt 4.0 und Smart Machines: Augmentation als Herausforderung für die Personalentwicklung [Work 4.0 and Smart Machines: Augmentation as a Challenge for Human Resource Development]", *HMD Prax. Wirtsch.* 56.4, (2019), 823-833.

⁴⁹ Apt - Priesack, "KI und Arbeit – Chance und Risiko zugleich", 222-223.

⁵⁰ Firdevs Güneş-Tanju Deveci, "Yetişkin Eğitimi Ve Hayat Boyu Öğrenme [Adult Education and Lifelong Learning]", *Ankara: Pegem Akademi* (2020), 1-17.

foundational beliefs in harmony with lived experiences, as well as the updating of religious knowledge and practices through self-directed and problem-centered approaches. In adult education generally, the primary determinants of learning include the learner's intrinsic motivation, preexisting knowledge base, capacity for self-management of the learning process, and environmental conditions such as social support networks and accessible digital tools.⁵¹

Before the 12th century, education was primarily directed toward adults; during the early period of Islam, the Prophet prioritized the education of adults and the training of educators. However, with the establishment of schools in modern times, children's education has gained prominence, and religious education has primarily concentrated on children and youth. Critics of this trend argue that the true target audience of religion is adults; consequently, it is advocated that the focus of religious education should be shifted back to adults. It is suggested that, especially in the preschool years, rather than providing direct religious content to children, it would be more beneficial to create an environment that evokes love and curiosity, as direct religious instruction at an early age may lead to negative prejudices. Furthermore, it is emphasized that a profound understanding of religion generally occurs during adulthood and that elderly individuals require religious education to add meaning to their lives and to deepen their beliefs. In light of these perspectives, it becomes evident that religious education programs need to be redesigned to align with the interests and needs of adults, adopting an approach that fosters critical thinking and facilitates a better understanding of religious values.⁵²

In adult religious education, AI's transformative potential can be harnessed to create learning environments that address the unique needs and characteristics of adult learners. Unlike traditional classroom settings dominated by didactic teaching, adult education emphasizes self-directed learning, experiential knowledge, and personal growth. AI-powered adaptive learning systems can personalize religious content by considering each learner's background, prior experiences, and specific learning objectives, thus ensuring that complex theological and ethical concepts are introduced at an appropriate pace. Data-driven analysis and feedback mechanisms further enhance this process by providing educators with real-time insights into individual progress, allowing for the refinement of teaching strategies and the development of targeted interventions to deepen understanding. Additionally, gamified learning environments and interactive digital tools can revitalize adult religious education by introducing elements such as challenges, rewards, and collaborative activities, thereby fostering a dynamic and engaging space for reflective practice and critical dialogue.⁵³ AI also plays a crucial role in language and intercultural education by leveraging advanced natural language processing to translate and contextualize religious texts, making them more accessible to adult learners from diverse cultural and linguistic backgrounds. By integrating these AI-driven

⁵¹ M. Akif Kılavuz, "Yetişkinlik ve Yaşlılık Döneminde Eğitim ve Din Eğitiminin Önemi [The Importance of Education and Religious Education in Adulthood and Old Age]", *Uludağ Üniversitesi İlahiyat Fakültesi Dergisi* 11.2 (2002), 59-72.

⁵² Kılavuz, "Yetişkinlik ve Yaşlılık Döneminde Eğitim ve Din Eğitiminin Önemi", 66-71; Hasan Dam, "Yetişkinlere Göre Yetişkin Din Eğitimi [Adult Religious Education from the Perspective of Adults]", *Değerler Eğitimi Dergisi* 1.4, (2003), 31-53.

⁵³ Ülfet Görgülü-Sena Kesgin, "Yapay Zekâ Robotlara Ahlâki ve Hukuki Statü Tanınması Problematikliği -İslam Ahlâki ve Hukuku Açısından Bir Değerlendirme- [The Problematics of Granting Moral and Legal Status to Artificial Intelligence Robots: An Evaluation from the Perspective of Islamic Ethics and Law]", *Recep Tayyip Erdoğan Üniversitesi İlahiyat Fakültesi Dergisi* 20 (Aralık 2021), 56-58.

approaches, adult religious education can evolve into a more personalized, reflective, and inclusive field—one that not only enhances content delivery and pedagogical processes but also preserves and enriches the spiritual, ethical, and communal dimensions essential to religious learning in the modern digital era.⁵⁴

• *Personalized Learning and Adaptive Systems:* Artificial intelligence (AI) can tailor educational trajectories to align with the individual learning pace, prior knowledge, and specific interests of adult learners.⁵⁵ In the context of adult religious education, AI facilitates the development of personalized and adaptive curricula by delivering bespoke content and modular instruction that reflect each learner's unique profile. For instance, platforms typically begin by evaluating a learner's foundational doctrinal understanding and historical context to pinpoint areas requiring further development. Based on this diagnostic process, they subsequently recommend targeted instructional resources—drawing upon expert analyses, historical case studies, and interactive media—in key areas such as liturgical practices, sacred text interpretation, and ethical considerations. Moreover, by incorporating contextual clarifications, moderated discussion forums, virtual study groups, and formative assessment tools, these systems continuously refine and reinforce the learning process. This integrative AI-driven approach transforms adult religious education into a more individualized, interactive, and effective pedagogical practice, significantly enhancing the depth of learners' spiritual insights, fostering critical thinking skills, and facilitating the seamless integration of religious knowledge into everyday life.⁵⁶

⁵⁴ Tobias Schmohl, Alice Watanabe - Kathrin Schelling, "Künstliche Intelligenz in der Hochschulbildung: Chancen und Grenzen des KI-gestützten Lernens und Lehrens [Artificial Intelligence in Higher Education: Opportunities and Limitations of AI-Supported Learning and Teaching]", (Hrsg. Tobias Schmohl, Alice Watanabe, Kathrin Schelling), *Künstliche Intelligenz in der Hochschulbildung. Chancen und Grenzen des KI-gestützten Lernens und Lehrens*. (Bielefeld: Hochschulbildung: Lehre und Forschung, 2023), 10.

⁵⁵ Büching, vd., "Learning Analytics an Hochschulen", 153; Maren Lübcke, Johannes Schrupf, Funda Seyfeli-Özhizalan - Klaus Wannemacher, "Künstliche Intelligenz zur Studienindividualisierung Der Ansatz von SIDDATA [Artificial Intelligence for Individualizing Studies: The SIDDATA Approach]", (Hrsg. Schmohl, Tobias, Watanabe, Alice, Schelling, Kathrin), *Künstliche Intelligenz in der Hochschulbildung. Chancen und Grenzen des KI-gestützten Lernens und Lehrens*, (Bielefeld: Hochschulbildung: Lehre und Forschung, (2023), 213-226; Sevim Ünal, "İbadetlerle İlgili Fetvalar Ve Yapay Zekâ Uygulamaları: Karşılaştırmalı Bir Analiz [Fatwas on Worship and Artificial Intelligence Applications: A Comparative Analysis]", *Dinbilimleri Akademik Araştırma Dergisi* 24/3 (Aralık 2024), 170-182. <https://doi.org/10.33415/daad.1580752>.

⁵⁶ Question: "Can you define the concept of Taqwa?"

Response from ChatGPT:

"Taqwa is a frequently used term in Islam, carrying profound meanings. Linguistically, it derives from the Arabic root "wqaya," which means "protection" or "guarding." In terminology, Taqwa refers to an individual's conscious effort to revere Allah, obey Him deliberately, and guard oneself from spiritual dangers by avoiding prohibited acts.

In the Qur'an and Hadith, Taqwa encompasses a person's awareness of their responsibilities to Allah and a commitment to living in accordance with His commands and prohibitions. It plays a central role in achieving spiritual maturity and embodying moral values.

In the Qur'an, those who possess Taqwa are referred to as "muttaqin." These individuals are promised closeness to Allah, guidance, and Paradise as their reward (Surah Al-Baqarah, 2:2-5). Taqwa is not limited to acts of worship but also extends to ethical conduct, social interactions, and one's way of life.

The Two Core Aspects of Taqwa:

Worship and Obedience: Fulfilling Allah's commands, avoiding His prohibitions, and practicing deliberate servitude.

Spiritual Guarding: Striving to attain Allah's pleasure by refraining from sinful actions and resisting base desires.

• *Data-Driven Analysis and Feedback:* Data-driven analysis and feedback in adult religious education involve using AI to identify learners' strengths and challenges.⁵⁷ For example, in Qur'anic recitation training, AI detects pronunciation errors and creates a tailored training plan. Similarly, in broader adult religious education, AI monitors performance through quizzes, forum participation, and multimedia engagement, and then provides targeted resources—such as readings, interactive modules, or webinars—to address learning gaps. This personalized approach not only helps educators refine their teaching strategies but also promotes self-directed improvement among adult learners, ultimately fostering a more adaptive learning environment.⁵⁸

• *Gamified Learning and Interactive Tools:* By integrating gamification and interactive elements, AI transforms adult religious education into a more engaging and stimulating experience.⁵⁹ For instance, a digital platform could feature gamified Q&A modules on core religious topics, enhanced with scoring systems, badges, and leaderboards to drive active learner participation. Additionally, incorporating scenario-based challenges and narrative-driven activities—coupled with immersive technologies such as virtual and augmented reality—can recreate ethical dilemmas and historical events, thereby deepening learners' contextual understanding and fostering critical thinking skills.⁶⁰

In conclusion, Taqwa is an awareness of Allah that encompasses both internal states and external behaviors, representing a holistic lifestyle. As one of the foundational concepts of Islamic ethics, Taqwa aims to ensure an individual's peace in this world and eternal salvation in the hereafter" <https://chatgpt.com/c/675443d2-e914-8001-a5c2-ea72fdb9888c>

⁵⁷ Büching, vd., "Learning Analytics an Hochschulen", 153-154; Schmohl, vd., "Künstliche Intelligenz in der Hochschulbildung: Chancen und Grenzen des KI-gestützten Lernens und Lehrens Eine Einführung in die Beiträge des Bandes", 10-11.

⁵⁸ Error Analysis (Ayn Letter):

Error Description:

The letter Ayn (ع) is a sound produced from the throat. When it is not properly pronounced, it is often replaced with an "a" or "e" sound. This can lead to Tajweed errors and shifts in meaning when reciting the Qur'an.

Example of Error:

The word "عَلِيم" (Alim, "All-Knowing") may be misread as "alim," altering both the pronunciation and meaning.

Error Correction:

Teach the correct articulation point of the Ayn sound through throat exercises.

Utilize audio and visual aids to practice accurate pronunciation.

Encourage slow and deliberate recitation to develop the correct habit. <https://chatgpt.com/c/674c3f7c-ed50-8001-ab85-7ef295932de9>

⁵⁹ Klinge, "Lehrende Algorithmen – spielend-behavioristische Lernanregungen von Apps als digitale Technologien", 65-73.

⁶⁰ Game: Religious Knowledge Challenge

Rules: Each correct answer earns 10 points. No points are awarded for incorrect answers. Answer all the questions and see your total score!

Question 1: What is the first command in Islam?

- A) Believe
- B) Read
- C) Perform prayer
- D) Be patient

Correct Answer: B) Read

Explanation: The first command in Islam is "Read" (Surah Al-Alaq, 1), emphasizing learning and knowledge.

Question 2: In which city is the Hajj pilgrimage performed?

- A) Medina
- B) Mecca

• *Language and Intercultural Religious Education*: In adult religious education, the critical importance of approaches that are sensitive to cultural and linguistic diversity is underscored, with artificial intelligence playing a pivotal role in this transformation.⁶¹ Advanced translation services and multilingual teaching platforms facilitate access to complex religious content; for instance, in courses from various religious traditions, classical commentaries are automatically translated into languages such as English, Arabic, and Turkish. Moreover, AI-supported systems enrich the presentation of rituals, traditions, and doctrinal interpretations by incorporating interactive elements—such as virtual tours, multimedia presentations, and scenario-based discussions—that provide essential cultural context. Collectively, these strategies not only enable a deeper understanding of religious concepts but also strengthen intercultural dialogue, thereby fostering the development of an inclusive and dynamic learning environment.⁶²

C) Jerusalem

D) Damascus

Correct Answer: B) Mecca

Explanation: Hajj is an act of worship performed in Mecca, where the Kaaba is located.

(...)

Results:

Calculate your total score:

10 points for each correct answer.

50 Points: Excellent, your religious knowledge is outstanding!

30–40 Points: Great job, keep learning!

10–20 Points: A solid start, keep exploring!

0 Points: No worries, use this opportunity to learn! 😊. <https://chatgpt.com/c/674c3f7c-ed50-8001-ab85-7ef295932de9>

⁶¹ Bresinsky, vd., "Wie die Maschine uns narrt.", 113; Zehner, "Künstliche Intelligenz in der Bildung. Ihr Potenzial und der Mythos des Lehrkraftroboters", 4-6; Europäische Kommission, Generaldirektion Bildung, Jugend, Sport und Kultur, "Ethische Leitlinien für Lehrkräfte über die Nutzung von KI und Daten für Lehr- und Lernzwecke [Ethical Guidelines for Educators on the Use of AI and Data for Teaching and Learning Purposes]" (Amt für Veröffentlichungen der Europäischen Union), (14/2022), 34-36; Ahmet Çakmak, vd. "Din Eğitimi Biliminin Temel Konularında ChatGPT Yapay Zeka Uygulama Verilerinin Güvenirliliği [The Reliability of ChatGPT Artificial Intelligence Application Data on Fundamental Topics of the Science of Religious Education]". *Dinbilimleri Akademik Araştırma Dergisi* 24/3 (Aralık 2024), 337-340, 347. <https://doi.org/10.33415/daad.1590460>.

⁶² Easter Egg and Egg Decorating Tradition

Easter is one of the most significant Christian celebrations, commemorating the resurrection of Jesus Christ. One of its prominent symbols is the Easter egg, which represents resurrection and new life in Christianity. The practice of decorating and painting eggs is a cultural aspect of this ritual.

Historical and Religious Background

The egg has long been regarded as a symbol of rebirth and life. Christianity adopted this symbolism to represent the resurrection of Jesus Christ.

During the Middle Ages, eggs were forbidden during Lent, the period of fasting and penance. As a result, eggs collected during Lent were preserved and painted for the Easter celebration.

The Ritual in Practice

- **Egg Painting**: Traditionally, eggs are painted red, symbolizing the blood shed by Jesus on the cross. Today, however, various colors and patterns are used. Egg painting is often a fun activity, especially for children, bringing families together for the event.
- **Easter Egg Hunt**: This is a playful ritual organized for children. Decorated eggs are hidden in grassy areas or gardens, and children search for them. This activity promotes sharing and enjoyment.
- **Egg Cracking Contest**: Participants test the durability of their decorated eggs by hitting them against one another. The person with the unbroken egg is considered "lucky."

Cultural Variations

- **In Orthodox Churches**: Eggs are typically painted red and blessed during religious services as part of Easter celebrations.

Alan Turing and John Searle's theories on AI can be utilised to evaluate the contributions of AI to religious education. Turing's understanding of modelling human-like learning processes provides insights into how AI can be employed in personalised learning environments. His theory highlights AI's potential to facilitate learning by simulating human behaviour.⁶³ In contrast, John Searle's distinction between *strong AI* and *weak AI* offers an opportunity to discuss the limitations of current technologies and their implications for educational processes. Searle's critiques remind us that, due to its lack of consciousness, AI can only serve as a tool in value-centered fields such as religious education.⁶⁴

Religious education extends beyond transmitting knowledge to encompass uniquely human aspects, such as developing emotional intelligence, fostering ethical awareness, and cultivating a sense of social belonging. The limitations of AI in these areas must be considered, and its role in educational processes should be evaluated accordingly. These limitations can be articulated as follows:

- *Empathy and Value Transmission:* AI cannot perform profound human functions such as conveying religious values or fostering empathy in an individual's spiritual journey. Empathy requires understanding an individual's emotional and spiritual needs, providing appropriate guidance, and responding effectively.⁶⁵ For example, while AI can technically teach how to perform an act of worship, it cannot convey the profound spiritual meaning of that worship or help the individual internalise its significance. This limitation restricts the emotional and spiritual interaction at the heart of religious education.

- *Ethical and Consciousness Limitations:* AI cannot make ethical decisions or conscious choices.⁶⁶ In religious education, enhancing an individual's moral awareness helps them understand the nuanced distinction between right and wrong and develop their value judgments. However, AI does not possess the inner depth or intuition required for such conscious and spiritual guidance. Its decisions are based on data-driven and mechanical processes. Therefore, it cannot fulfil functions such as fostering spiritual depth, essential in religious education.

- *The Importance of Human-Centered Models:* Religious education is a field that requires profound human depth, and the guidance of a teacher provides irreplaceable human interaction.

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- In Western Europe and the United States: Eggs are not only symbolic but also crafted as chocolates or candies, which are given as gifts to children.

Educational and Spiritual Dimensions

This ritual strengthens family and community bonds while serving as a symbolic expression of Jesus' resurrection. It also conveys a message of new beginnings and hope through the use of Easter eggs.

As both a religious and cultural tradition, this ritual continues to be practiced in diverse forms across different societies. <https://chatgpt.com/c/674ffb0a-bafc-8001-913c-09f36d18efb0>

⁶³ Turing, "Computing Machinery and Intelligence", 433-460.

⁶⁴ Searle, "Minds, brains, and programs", 417-457.

⁶⁵ Joachim Rathmann, "Künstliche Intelligenz im Umweltschutz: Möglichkeiten und Grenzen [Artificial Intelligence in Environmental Protection: Opportunities and Limitations]", (Hrsg. Joachim Rathmann - Uwe Voigt), *Natürliche und Künstliche Intelligenz im Anthropozän*, (wbG Academic, 2021), 263-268.

⁶⁶ Europäische Kommission, Generaldirektion Kommunikationsnetze, Inhalte und Technologien, "Ethik-leitlinien für eine vertrauenswürdige KI [Ethical Guidelines for Trustworthy AI]" (Publications Office), (2019), 2-50; Uwe Meixner, "Bewusstseinsintelligenz und Künstliche Intelligenz [Conscious Intelligence and Artificial Intelligence]", (Hrsg. Joachim Rathmann - Uwe Voigt), *Natürliche und Künstliche Intelligenz im Anthropozän*, (wbG Academic, 2021), 13-31.

Teachers can establish personal relationships with students, offering advice tailored to their emotional and spiritual needs. Moreover, they can provide meaningful and contextually appropriate answers to individual questions, personalising the learning process. Conversely, AI can only serve as a supportive tool and cannot fully assume the teacher's role as a guide in this context.⁶⁷

AI has the potential to develop more inclusive, personalised, and innovative approaches in religious education in the future. This potential enables enriching religious education experiences through tools such as big data analytics, virtual reality technologies, and online community platforms.⁶⁸

- *Big Data*: Big data analytics is a powerful technology that analyses users' learning behaviours and individual interest levels in religious knowledge. It offers significant opportunities to understand how adults access religious information, their learning pace, the types of content they are most interested in, and the topics they find challenging. In this context, big data facilitates the creation of personalised religious education content tailored to the specific needs of each individual.⁶⁹ For instance, if a user is interested in Islamic jurisprudence (*fiqh*), the system can recommend more detailed content, offering a personalised learning experience. Additionally, challenges individuals face in their learning processes can be analysed to develop more effective instructional materials. The general religious tendencies of communities can also be examined through big data, enabling religious education to be more contextually relevant in a social framework.

- *Virtual Reality*: Virtual reality technologies allow individuals to learn and practice an act of worship or ritual in a virtual environment before experiencing it physically.⁷⁰ This technology is particularly effective for worship education, which requires practical learning. Virtual reality technologies can facilitate the teaching of complex rituals such as *Hajj* or *Umrah* in a virtual environment, helping individuals prepare for these acts of worship. Details such as how to perform *tawaf* or the rules of *ihram* can be conveyed visually and interactively in a virtual setting. Additionally, for individuals learning how to perform prayer (*salat*), virtual reality can provide visual guidance to ensure the correct execution of postures and movements. Moreover, users can virtually experience the atmosphere of significant historical and spiritual sites, such

⁶⁷ Europäische Kommission, Generaldirektion Bildung, Jugend, Sport und Kultur, "Ethische Leitlinien für Lehrkräfte über die Nutzung von KI und Daten für Lehr- und Lernzwecke", 18; Lübcke, vd., "Künstliche Intelligenz zur Studienindividualisierung Der Ansatz von SDDATA", 214-225.

⁶⁸ Deniz Şenocak, "Açık ve uzaktan öğrenme ortamlarında yapay zekâ: Sunduğu fırsatlar ve yarattığı endişeler [Artificial Intelligence in Open and Distance Learning Environments: Opportunities and Concerns]", *Açıköğretim Uygulamaları ve Araştırmaları Dergisi* 6/3 (2020), 56- 78

⁶⁹ Hesse, "Das Zerstörungspotenzial von Big Data und Künstlicher Intelligenz für die Demokratie.", 339-346; Europäische Kommission, Generaldirektion Bildung, Jugend, Sport und Kultur, "Ethische Leitlinien für Lehrkräfte über die Nutzung von KI und Daten für Lehr- und Lernzwecke", 33; Knaus, "Künstliche Intelligenz und Pädagogik – ein Plädoyer für eine Perspektiverweiterung", 3.

⁷⁰ Jens Schröter, *Das Netz und die virtuelle Realität: Zur Selbstprogrammierung der Gesellschaft durch die universelle Maschine* [The Web and Virtual Reality: On Society's Self-Programming Through the Universal Machine], Transcript Verlag, (2004), 156-206; Europäische Kommission, Generaldirektion Bildung, Jugend, Sport und Kultur, "Ethische Leitlinien für Lehrkräfte über die Nutzung von KI und Daten für Lehr- und Lernzwecke", 36.

as the Prophet's Mosque (*Masjid al-Nabawi*), the Kaaba, or Jerusalem, with the help of virtual reality.

• *Online Forums:* AI-powered online platforms enable individuals to ask religious questions, explore diverse perspectives, and actively participate within a community. These platforms provide a space that supports individual learning and the collective search for spiritual meaning within a community. Users can pose their religious questions anonymously or within a community and receive instant responses from experts or AI-based systems. Perspectives rooted in various denominations, cultures, or theological approaches contribute to users gaining a broader understanding. Furthermore, through an online community, users can exchange ideas with like-minded individuals and benefit from the support of a network that shares similar interests.⁷¹

AI has the potential to offer personalised, accessible, and innovative learning experiences in adult religious education. However, it must be remembered that AI should only be used as a supportive tool in a spiritual and value-oriented field like religious education. The advantages provided by technology should be balanced with the indispensable role of teachers and human elements. Therefore, integrating AI into religious education should be approached with a human-centered perspective and in alignment with ethical principles. It should be designed to contribute to individuals' spiritual and moral development under the guidance of teachers.

Conclusion

The integration of AI technologies into education has the potential to profoundly transform teaching processes. Specifically, in the context of adult religious education, AI's capacity to support personalized learning experiences, facilitate teaching processes, and respond more effectively to learners' needs can enhance the efficiency and impact of education. However, realising this potential requires careful consideration of the limitations of technology, its ethical dimensions, and the indispensable importance of human-centered education.

AI in education should prioritise reducing the workload of religious educators and supporting their roles rather than entirely replacing them. Augmentation strategies highlight AI's potential to collaborate with teachers in enriching learning processes and providing customised solutions tailored to individual needs. For instance, personalised learning systems and significant data analytics offer opportunities to optimise learning processes. In contrast, virtual reality technologies and game-based learning tools enhance motivation and contribute to more effective learning. However, in a field like religious education, where spiritual and ethical values are central, it is evident that critical roles such as emotional intelligence, empathy, and value transmission performed by teachers cannot be replaced by AI.

The role of AI in religious education gains significance when employed as a supportive tool. Under the guidance of teachers, AI can serve the purposes of religious education by contributing

⁷¹ Joachim Rekonstruktion der Kommunikation des betrieblichen Ausbildungspersonals in Online-Foren. Eine computerlinguistische Analyse des Online-Forums foraus.de [Reconstruction of Communication by Vocational Training Personnel in Online Forums: A Computational Linguistic Analysis of the Online Forum foraus.de], *Zeitschrift für Erziehungswissenschaft*, (2024), 1-22.

to individuals' spiritual, ethical, and emotional development. However, this process must address data security, privacy, and adherence to moral principles with utmost care. Adopting a model where AI supports a human-centered approach to education can harmoniously integrate technological innovations with pedagogical values.

AI holds transformative potential in religious education and educational processes in general. However, for these technologies to be implemented effectively and ethically, the roles of teachers must be preserved, and technological advancements must be integrated with a human-centered approach. A balanced combination of technology and pedagogy will define the future role of AI in education. In this process, teachers will be able to leverage the innovations offered by AI to deliver more effective and comprehensive education.

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