

CROATIAN RELIGIOUS TEACHERS' TRUST IN ARTIFICIAL INTELLIGENCE

Nenad Palac

Katolički bogoslovni fakultet
Sveučilišta u Splitu
nenad.palac1@gmail.com

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Abstract

Artificial Intelligence (hereafter: AI) and AI-based tools have become an integral part of modern society and are increasingly being implemented in the educational system, both among teachers and students. This paper analyses the attitudes and trust of Croatian religious education teachers towards the application of AI tools in everyday life and in Catholic religious education classes. The empirical research was conducted through a survey among 1,400 religious education teachers gathered in the Facebook group “Školski vjeroi nauk – Vjeroučitelji” (eng. Religious Education in School – Religious education teachers, hereafter: ŠVV), with 205 participants (14.43%) anonymously completing the questionnaire in February 2025. The results indicate an ambivalent attitude of religious education teachers towards AI. Despite their limited knowledge of AI, they still recognize its potential. At the same time, they express a certain level of caution, particularly regarding the generation and processing of religious content, although they ultimately do not fear that these tools will replace them in the future. The primary concern of religious education teachers relates to the possible reduction of the interpersonal dimension of teaching and emphasises the need for clearer ethical guidelines in the integration of AI tools into the educational system.

Keywords: Artificial Intelligence, religious education teachers, Catholic religious education, trust

1. THE CHURCH'S PERSPECTIVE ON AI

The rapid development of AI and its increasingly present integration into human daily life have prompted the Catholic Church to conduct a more systematic analysis of the ethical implications of this technology. In this process, the Church strives to formulate

ethical guidelines that can contribute to the responsible and purposeful use of AI systems, both in their development and in their application by end users. By providing clear ethical frameworks, the aim is to prevent potential abuses of AI technologies, particularly in the context of their accelerated development and frequently unpredictable technological scenarios, which at times resemble scenes from science fiction books and films.¹ The ethical guidelines that the Church, as Mother and Teacher², seeks to provide on this topic are aimed at building the common good, grounded in the care for our entrusted earthly home, and dedicated to the promotion of justice and peace among nations³.

The last three popes — John Paul II, Benedict XVI, and Francis — each during their pontificate, in accordance with the social and technological context of their time, have reflected on the advantages and challenges posed by AI-based technologies.⁴ Since the greatest progress in the development of AI systems has taken place during the pontificate of Pope Francis, some of his messages will be briefly examined below, as well as the current ethical guidelines of the Church's Magisterium on this topic. In doing so, we place special emphasis on topics related to the integration of AI systems into the educational framework.

In the encyclical *Laudato Si'*, Pope Francis emphasises that technological progress and certain technologies are not inherently morally neutral, as they often reflect and reproduce the specific interests of their creators and, consequently, shape lifestyles and

¹ Usp. Taras Barščevski, Crkva pred izazovima umjetne inteligencije, *Bogoslovska smotra*, 94 (2024.) 1, str. 34-36.

² Usp. *Katekizam Katoličke Crkve*, Hrvatska biskupska konferencija, Zagreb, 1994., br. 2030-2046.

³ Usp. FRANCIS, Audience with participants in the meeting Rome Call for A.I. Ethics organized by the Pontifical Academy for Life and the Renaissance Foundation, (10.1.2023.) u: <https://press.vatican.va/content/salastampa/en/bollettino/pubblico/2023/01/10/230110a.html> (4.9.2025.)

⁴ Usp. Veronika Čunderlik Čerbova, Artificial Intelligence, Ethics, and the Catholic Church, u: Iwona Florek i Ildiko Laki (ed.), *Human Rights. From Reality to the virtual world*, Josefow, University of Euroregional Economy, 2021., str. 20-31; Giovanni Tridente, *Anima Digitale. La Chiesa alla prova dell'Intelligenza Artificiale*, Todi, Tau editrice, 2022.; Giovanni Tridente, Evaluating Church Communication in the Era of Artificial Intelligence, *Roczniki Nauk Społecznych*, 52 (2024.) 3, str. 23-41.; Taras Barščevski, Crkva pred izazovima umjetne inteligencije, str. 31-52; Christoforus G. Apul i Korintius K. Fedrianus, *Transforming the Catholic Church: Responding to Ethical Challenges in the AI Technology Revolution*, u: <https://publisher.stipas.ac.id/index.php/pbs/article/view/72> (4.9.2025.)

direct social processes.⁵ For an adequate response to these shortcomings of AI systems — which simulate human capabilities but lack authentic human qualities — it is essential to establish regulatory frameworks and ensure an ethically grounded and just interaction between humans and modern technological solutions. Only such an approach enables the optimal utilization of their potential in the service of individuals and society as a whole.⁶ Pope Francis emphasises that technological progress can serve as a foundation for building a better world, but only if it is guided by ethical principles rooted in the vision of the common good. The ethics of freedom, responsibility, and fraternity play a key role in this process, as they enable the integral development of individuals in a dynamic relationship with society and the natural environment.⁷

One of the significant reflections on this topic was given by Pope Francis on the occasion of the 57th World Day of Peace on January 1, 2024.⁸ While the Pope on this occasion praises human creativity and the use of God-given ability to continue His work of creation, he simultaneously warns of the dangers that may arise from the misuse of AI systems: threats to human survival, social instability, loss of peace, and more.⁹ Special attention in this message is given to the challenges that AI systems pose for education. Pope Francis also recognizes the technological benefits arising from their development, particularly in terms of connectivity and communication. However, he simultaneously questions the quality of such relationships—especially in comparison to those based on direct, human interaction.¹⁰ Furthermore, he emphasises the crucial role that educational institutions play in developing critical

⁵ Usp. FRANJO, *Laudato si`*. Enciklika o brizi za zajednički dom, Zagreb, 2020., Kršćanska sadašnjost, br. 107.

⁶ Usp. FRANCIS, Address of his Holiness Pope Francis to Participant in the Plenary Assembly of the Pontifical Academy for Life (25. 2. 2019), u: https://www.vatican.va/content/francesco/en/speeches/2019/february/documents/papa-francesco_20190225_plenaria-accademia-vita.html (4.9.2025.)

⁷ Usp. FRANCIS, Address of his Holiness Pope Francis to the Participant in the Seminar „The Common Good in the Digital Age“, Organized by the Dicastery for Promoting Integral Human Development (DPIH) and the Pontifical Council for Culture (PCC), (27. 9. 2019.), u: https://www.vatican.va/content/francesco/en/speeches/2019/september/documents/papa-francesco_20190927_eradigitale.html. (4.9.2025.)

⁸ Usp. FRANJO, Papa Franjo, Papina poruka za Svjetski dan mira 2024., (8.12.2023), u: <http://ika.hkm.hr/dokumenti/papina-poruka-za-57-svjetski-dan-mira/> (4.9.2025.)

⁹ Usp. FRANJO, Papa Franjo, Papina poruka za Svjetski dan mira 2024., br. 1.

¹⁰ Usp. *Isto*, br. 7.

thinking across all age groups, particularly in the context of new and emerging technologies. In this regard, these institutions should equip students with the skills to critically analyse data generated by AI tools and teach them how to recognize misinformation, fake news, and AI hallucinations, which can easily spread through digital channels.¹¹ In this message, Pope Francis repeatedly calls for the further development of the discipline of the 'ethical approach to algorithm development' or 'algor-ethics'¹², through which, competent groups of individuals would work on formulating ethical guidelines for AI systems — from the initial stages of research to their commercialization. In this way, it would be ensured that AI serves not only technological progress or economic profit, but also the common good, the respect for human dignity, and the protection of vulnerable groups.¹³

Within this topic, special importance and weight is given to the document *Antiqua et nova* (hereafter: AN), which was released during the pontificate of Pope Francis and was produced and published by the Dicastery for the Doctrine of the Faith and the Dicastery for Culture and Education.¹⁴ In paragraphs 77–84, this document

¹¹ Usp. *Isto*.

¹² Usp. FRANCIS, Address of His Holiness Pope Francis To Participants in the Congress on the Child Dignity in the Digital World. (14. 11. 2019), u: https://www.vatican.va/content/francesco/en/speeches/2019/november/documents/papa-francesco_20191114_convegno-child%20dignity.html; PONTIFICAL ACADEMY OF LIFE, Address prepared by Pope Francis, Read by H.E. Archbishop Palaglia, President of the Pontifical Academy for Life (28. 2. 2020), u: https://www.vatican.va/content/francesco/en/speeches/2020/february/documents/papa-francesco_20200228_accademia-perlavita.html (4.9.2025.)

¹³ In contemporary scientific and ethical discussions on technology, the concept of 'algorithethics' is gaining increasing prominence. Algorithethics refers to the integration of ethical principles into the design and application of algorithms, with an emphasis on responsibility, transparency, and a human-centered approach. Since technology - especially language as its most powerful tool - actively shapes human cognition, social reality, and interpersonal relations, algorithethics asks not only *how* we develop technology, but also *why*, *for what purpose*, and *with what consequences*. In the context of AI, which can simultaneously generate knowledge and spread misinformation, Benanti calls for the establishment of "ethical guardrails" that will steer technology toward the good of humanity, rather than toward manipulation, exclusion, or dehumanization. Usp. FRANJO, Papa Franjo, Papina poruka za Svjetski dan mira 2024., br. 6.; Paolo Benanti, The urgency of an algorithethics, *Discover Artificial Intelligence*, 3 (2023.) 11, str. 1-8.

¹⁴ DICASTERY FOR THE DOCTRINE OF FAITH AND DICASTERY FOR CULTURE AND EDUCATION, *Antique et Nova. Note on the Relationship Between Artificial Intelligence and Human Intelligence* (14. 1. 2025.), u: https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_ddf_doc_20250128_antiqua-et-nova_en.html (4.9.2025.)

directly addresses the impact of AI systems on educational processes, analysing the challenges and opportunities from the perspective of Church teaching. The document highlights a holistic approach to education, according to which learning and teaching processes are not merely mechanisms for the transmission of information, but are aimed at the integral development of the person in all its dimensions—intellectual, cultural, spiritual, and social.¹⁵ The central focus of this process is the irreplaceable relationship between the student and the teacher. Teachers do not merely transmit knowledge, but also fundamental human values and encourage the joy of discovery in learning among students. Their physical presence creates a dynamic and interactive relationship that no AI system can replicate or replace.¹⁶ In addition to the previously highlighted points, the document also emphasises that if AI is used within the context of the existing teacher-student relationship, with a clear focus on authentic educational goals, it can become a valuable tool for improving access to education, providing individualized support, and offering rapid feedback.¹⁷ Despite this, there are certain risks that may lead to an increase in critical thinking and dependence on technology, which in turn undermines the development of intellectual skills and the independence of students.¹⁸ In this context, special responsibility lies with schools, universities, and research institutions that are called to study AI tools in this early stage of their development. These institutions must provide appropriate ethical guidelines that will contribute to the building of a just society and the common good, rather than the spread of biased or fabricated information.¹⁹

The attitude of the Church's teaching towards the AI systems can be viewed through the prism of measured realism. Pope Francis, following the continuity of his predecessors, as well as the relevant Vatican dicasteries addressing this topic, clearly and unequivocally emphasise that AI brings significant benefits, but at the same time carries a range of potential and real risks.²⁰ The positive

¹⁵ Usp. DICASTERY FOR THE DOCTRIN OF FAITH AND DICASTERY FOR CULTURE AND EDUCATION, *Antique et Nova. Note on the Relationship Between Artificial Intelligence and Human Intelligence*, br. 77-84.

¹⁶ Usp. *Isto*, br. 79.

¹⁷ Usp. *Isto*, br. 80.

¹⁸ Usp. *Isto*, br. 81-82.

¹⁹ Usp. *Isto*, br. 83-84.

²⁰ Usp. Giovanni Tridente, *Evaluating Church Communication in the Era of Artificial Intelligence*, str. 36-37.

and negative impacts of AI on education are already being realized and affect all participants in the educational process. In this context, the efforts of the Church's Magisterium are encouraging, as seen in the publication of the AN document and Pope Francis' call for the development of 'algor-ethics', aimed at more precisely defining the boundaries and guidelines for AI application. According to Church teaching, AI systems can never replace the teacher, but can serve as a complement and support that, with a balanced approach, contributes to holistic education. This approach is based on critical thinking and concern for the common good, ensuring that technology remains in the service of humanity and its intellectual and moral development.

2. CROATIAN (RELIGIOUS) EDUCATION TEACHERS FACING THE CHALLENGE OF AI

Research on the attitudes of Croatian teachers towards AI tools and their application in the educational process in this region is scarce and mostly conducted at a professional level, often involving smaller, targeted groups of teachers and students. Furthermore, outside of this research, there are no prior studies that have quantitatively examined the trust in AI among religious education teachers as a distinct group within the educational system.

Croatian teachers included in such research recognise the potential of AI tools in enhancing teaching, but at the same time express reservations regarding the reliability of generated information, the ethical challenges of their use (the risk of losing creativity and critical thinking, plagiarism), and the protection of user privacy.²¹ Research also points to the challenge of recognising content generated by AI tools in comparison to student work.²² As technology develops, this issue will become more pronounced, as AI tools become increasingly sophisticated in understanding the context of questions, recognising nuances of meaning, and integrating emotional and human tones into generated content. In this context, the question of the perception of authorship of content created using AI tools in education also arises. In a study conducted among a smaller

²¹ Usp. Davorka Jug i Diana Tabar, Učenci i učitelji pred izazovima AI tehnologija. Umjetna inteligencija u školi kao potencijal ili prijetnja, *Bjelovarski učitelj*, 29 (2024.) 1-3, str. 201-205.

²² Usp. Miljenko Hajdarović, Prepoznaju li učitelji povijesti rukopis umjetne inteligencije?, *Poučavanje povijesti*, 2 (2023.) 2, str. 85-95.

group of competent respondents, the majority consider the AI system itself to be the author, while others highlight the role of the programmer who developed the algorithm. Some attribute authorship to the original creators of the content that served as the foundation for the generated material. The smallest number of respondents in this study believe that authorship belongs to the person who used the AI tool to create the content.²³

Specific possibilities for the implementation of AI tools, especially ChatGPT, in the Croatian education system can be seen through examples in subjects such as History²⁴ and Croatian Language²⁵ at the primary school level, or as support for students in learning, research projects, and preparation for future careers at the secondary school level²⁶. When it comes to higher education and the application of AI, research indicates that both students and professors actively use these tools for various purposes. The collected data shows that students are more inclined to trust the accuracy of the content, while professors, as educational professionals with greater responsibility for providing accurate and verified information, are more sceptical about the results generated by AI tools.²⁷

Ultimately, one of the key themes that repeatedly emerges in research conducted in Croatia is the need to preserve academic integrity, specifically preventing the misuse of AI tools within the education system.²⁸ To mitigate such unethical use of AI tools, pro-

²³ Usp. Matija Varga i Dražen Ružić, Umjetna inteligencija u obrazovanju, *Varaždinski učitelj*, 7 (2024.) 15, str. 1-10.

²⁴ Usp. Miljenko Hajdarović, Umjetna inteligencija, ChatGPT i poučavanje Povijesti, *Poučavanje povijesti*, 2 (2023.) 1, str. 52-65.

²⁵ Usp. Nikolina Cvrtila, Umjetna inteligencija i književnost – vizualizacija književnih likova (primjeri iz prakse), *Hrvatski jezik*, 11 (2024.) 2, str. 18-21.

²⁶ Usp. Milica Mikecin, Uloga i primjena umjetne inteligencije u obrazovanju (primjeri dobre prakse), *Nastavnička revija*, 5 (2024.) 2, str. 51-63.

²⁷ Usp. Zvonimir Klarin, Primjena ChatGPT jezičnog modela umjetne inteligencije u visokom obrazovanju., *Električni zbornik radova Veleučilišta u Šibeniku*, 17 (2023.) 3-4, str. 99-112.

²⁸ Usp. Bernard Vukelić, Zlatko Šehanović i Nadia Alić, Izazovi i moguća rješenja u korištenju umjetne inteligencije (AI) prilikom provođenja ispita u visokom školstvu, *Politehnika*, 7 (2023.) 2, str. 40-45.; Jadranka Ivanković, Primjena umjetne inteligencije u obrazovanju: stavovi mladih, *CroDiM*, 8 (2025.) 1, str. 63-74.; Nina Pavlin-Bernardić, Klara Bosnar i Vanja Putarek, Čini li prilika lopova? Varanje gimnazijalaca na pisanim online ispitima tijekom pandemije COVID-19, u: Iva Kapović, Antun Palinović i Vanja Putarek (ur), *26. dani Ramira i Zvonimira Bujasa: međunarodni psihologijski znanstveni skup – knjiga sažetaka*, Odsjek za psihologiju FFSUZ, Zagreb, 2023., str. 106; Nina Pavlin-Bernardić, Akademsko nepoštenje učenika i umjetna inteligencija: novi izazovi za nastavnike, *Varaždinski učitelj*, 8 (2025.) 17, str. 1-8.

fessional guidelines have been issued for all stakeholders in the educational process. These guides can assist students, teachers, and parents in recognizing, evaluating, and properly using AI tools, both in teaching and in everyday life.²⁹

Given the increasingly sophisticated capabilities of AI systems and individual tools based on AI, it is crucial to continue researching their role in the educational process and to help develop additional ethical guidelines that will ensure their responsible and purposeful application.

3. AIMS, HYPOTHESES, RESEARCH METHODS

The subject of this research are the Croatian religious education teachers involved in the Facebook group ŠVV. The aim of this research is to examine the attitudes and trust of religious education teachers in AI within the context of religious education. On an individual level, this research analyses: general attitudes of religious education teachers towards AI and its role in education, the level of trust in AI when processing religious topics, fears related to AI, ethical issues, and the need for guidelines in working with AI.

During the implementation of this research, four hypotheses were formed:

Hypothesis 1: Religious education teachers have limited knowledge of AI but recognise its potential in the educational process.

Hypothesis 2: Religious education teachers exhibit a low level of trust in AI, particularly when it comes to AI-generated content on religious education topics.

Hypothesis 3: Religious education teachers fear that AI could diminish the importance of human-mediated transmission of religious values.

Hypothesis 4: Religious education teachers believe that clear ethical guidelines for the use of AI in teaching need to be established.

In conducting the research, the method of surveying respondents was used. The questionnaire was digitised to facilitate easier

²⁹ Usp. Dalia Kager, *Umjetna inteligencija – razvoj i primjena. Priručnik za početno učenje*, Školska knjiga, Zagreb, 2023.; Lidija Kralj, Arjana Blažić, Helena Valečić, Sanja Janeš, Valentina Blašković, Nikolina Marinić, Kristina Slišurić, Darija Dasović, Vesna Majdančić i Drako Rakić, *Umjetna inteligencija u obrazovanju. Edukativni priručnik o primjeni umjetne inteligencije u učenju i poučavanju za učitelje, nastavnike i stručne suradnike u školi*, AEM – UNICEF, Zagreb, 2024., u: <https://www.medijskapismenost.hr/wp-content/uploads/2024/04/Umjetna-inteligencija-u-obrazovanju.pdf> (4.9.2025.)

distribution using the *Google Forms*. The use of digital tools such as *Google Forms* for conducting qualitative and quantitative research has become increasingly widespread over the past decade across various fields. This tool, which is free and easily accessible to all researchers, offers a range of functionalities found in highly specialised programs. However, since it is designed for a broader user base, it does not support complex statistical analyses that are possible with more advanced software. This limitation is partially mitigated by the ability to transfer collected data to other platforms.³⁰ An additional limitation of the study lies in the fact that the research sample includes only religious education teachers with a certain level of technological literacy, thereby implicitly excluding those who do not possess such competence or don't know about the existence of this Facebook group.

The use of this tool provides respondents with an additional layer of anonymity compared to traditional surveys, as they are separated by two layers of mediated anonymity—the screen and the digital survey. Certain studies have shown that participants feel more at ease when completing digital surveys compared to traditional methods. However, the issue of respondent honesty in such a context remains a topic of debate. While some authors argue that interacting with a screen encourages greater openness and sincerity, others highlight that the virtual environment may lead to response distortion. Moreover, research findings on this matter remain inconsistent.³¹ Despite ensuring respondent anonymity, it is necessary to consider that participants may be subject to certain cognitive biases, such as confirmation bias, social or professional desirability bias, and (religious) authority bias.

The surveys were disseminated with the permission and through the mediation of the administrator of the ŠVV Facebook group.³² Participation in the survey was voluntary, with a restric-

³⁰ Usp. Amol K. Bhalerao, Application and Performance of Google Forms for Online Data Collection and Analysis: A Case of North Easter Region of India, *Indian Journal of Extension Education*, 51 (2015) 3&4, str. 49-53.; Lisa Travis, One of Many Free Survey Tools: Google Docs, *Journal of Electronic Resources in Medical Libraries*, 7 (2010) 2, str. 105-114.; Ika Yunitasari i Ade Sudirman, The Utilization of Google Forms as Learning Media in Statistics Course, *Journal of English Education Studies*, 4 (2021.) 2, str. 16-24.

³¹ Usp. Andre M. Maréchal, Alain Cohn i Tobias Gesche, Honesty in the Digital Age, *CESifo Working Paper*, No. 6996 (2018.), str. 1-25.; Timo Gnambs and Kai Kaspar, Disclosure of sensitive behaviors across self-administered survey modes: a meta-analysis, *Behavior Research Methods*, 47 (2015.) 4, str. 1237-1259.

³² The ŠVV Facebook group (https://www.facebook.com/groups/486463681712018/?locale=hr_HR) was established on August 17, 2017, with the aim of connect-

tion allowing only one response per respondent. The survey link remained active for two weeks — from February 14 to February 28, 2025 — after which further participation and survey completion were disabled. The respondent base for this study consists of 1,420 religious education teachers from various Croatian (arch)dioceses who are members of the ŠVV Facebook group. A total of 205 participants accessed and completed the survey via the provided link, representing a sample of 14.43% of the ŠVV group's members. The results of this study are presented anonymously and in aggregate form.

4. RESULTS OF THE RESEARCH

4.1. General Characteristics of the Respondents

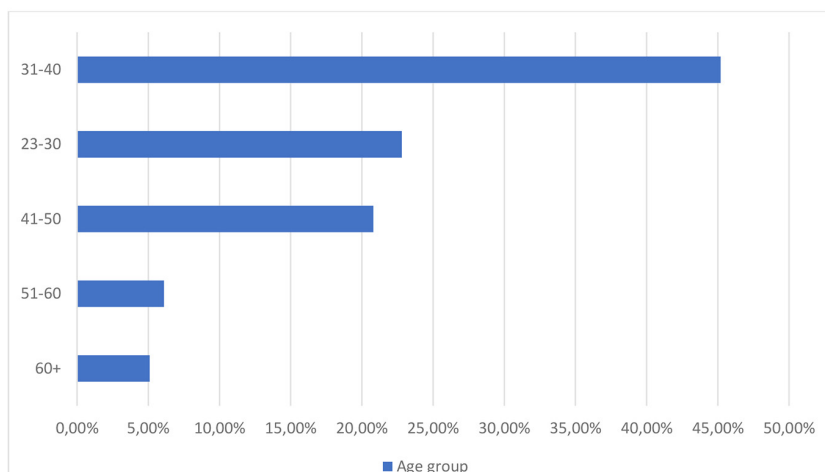
A total of 205 respondents participated in the survey out of the 1420 members of the ŠVV group, representing a sample of 14.43%. The number of respondents involved in this research is partially significant even on a national level, especially when considering data from (arch)diocesan Catechetical Offices. According to available data, the total number of employed religious education teachers in primary and secondary schools in Croatia for the 2023./2024. school year was 2264.³³ This means that the research covered approximately 9% of the teaching population in Croatia, thereby providing insight into the views of a significant portion of this professional group.³⁴

ing religious education teachers from various (arch)dioceses in Croatia through Facebook. It is a private group that gathers a significant number of exclusively lay religious education teachers, with access granted to members after verifying their identity and employment in schools. The group's administration is managed by Margareta, a religious education teacher from the Zagreb Archdiocese, who has chosen to remain anonymous in both managing the group and conducting this research. With her permission, we were able to publish the survey within the group.

³³ Usp. Sabina Marunčić, *Stručna formacija vjeroučitelja u kontekstu razvoja općih i specifičnih kompetencija za rad u školi*, doktorska disertacija, Katolički bogoslovni fakultet Sveučilišta u Splitu, str. 127-128. <https://repositorij.kbf.unist.hr/islandora/object/kbft:345/datastream/PDF/view>.

³⁴ After the dissolution of the Socialist Federal Republic of Yugoslavia and the establishment of an independent Croatian state, the gradual implementation of Catholic religious education as an elective subject in all primary and secondary schools in the Republic of Croatia began in the 1991./1992. school year. The Catholic Church was granted autonomy in the development of religious education curricula as well as in the organization and delivery of instruction within the school system. As an alternative to religious education, the sub-

The dominant age group among religious education teachers who participated in this study falls within the 31 to 41-year-old category (45.20%). The next largest groups consist of teachers aged 23 to 30 years (22.80%) and those aged 41 to 50 years (20.80%). Less represented groups include respondents over 50 years old, with 6.10% aged between 51 and 60, while those over 60 years old account for 5.10% of the total respondents.³⁵ According to the collected data on the work experience of religious education teachers, the dominant group consists of respondents with 11 to 20 years of experience (34%). The next largest groups include teachers with 5 to 10 years of experience (29.40%) and those with less than 5 years of experience (17.80%). Teachers with 21 to 30 years of experience make up 12.20% of the respondents, while the least represented group consists of those with more than 30 years of experience (6.60%).³⁶

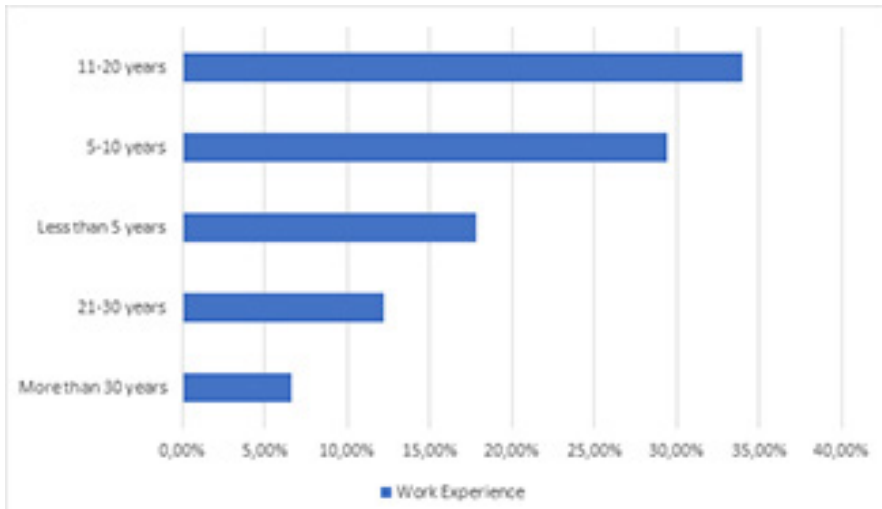


Graph 1. Age Structure of Religious Education Teachers

ject "Ethics" was introduced in secondary education in the 1995./1996. school year, while in 2023. an experimental curriculum for the subject "The World and I" was introduced as a potential replacement for religious education in primary schools. In the 2022/2023 school year, according to data from the Ministry of Science and Education, approximately 83% of the total number of enrolled students in primary and secondary schools attended Catholic religious education. Usp. Ksenija Rukavina-Kovačić, *Katolički vjeronauk u školi. Identitet i perspektive razvoja*, Glas Koncila, Zagreb, 2019., str. 39-108.; Ramona Šćuric, *Nakon katoličkog najviše učenika u Hrvatskoj pohada pravoslavni i islamski vjeronauk, evo i koliko* (7.1.2024), u: <https://www.srednja.hr/novosti/nakon-katolicnog-najvise-ucenika-u-hrvatskoj-pohada-pravoslavni-i-islamski-vjeronauk-evo-i-koliko/> (4.9.2025.)

³⁵ Graph 1.

³⁶ Graph 2.



Graph 2. Structure of Religious Education Teachers by Work Experience

According to the (arch)diocese of employment, the dominant group of respondents comes from the Archdiocese of Zagreb (37.10%) and the Archdiocese of Split-Makarska (20.80%). Among other (arch) dioceses, a significant share belongs to the Archdiocese of Đakovo-Osijek (6.10%), the Diocese of Varaždin (5.60%), and the Diocese of Dubrovnik (5.60%). Respondents from the remaining (arch)dioceses account for less than 5% of the total number of participants in this survey. Each (arch)diocese has at least one representative in this study.³⁷

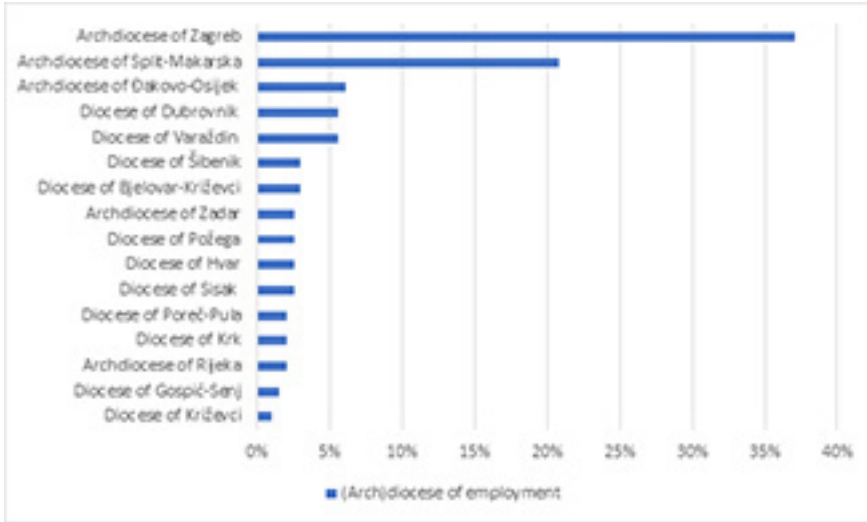
According to research data related to the workplace of respondents, the majority of religious education teachers are employed in urban areas, specifically in cities, accounting for 66% of the respondents. A smaller percentage, 24.40%, work in rural areas, while 5.10% are employed across multiple geographical locations. Although relatively lower, 3% of respondents work on an island, while 1.5% are currently unemployed. These findings indicate that the majority of religious education teachers who participated in this study carry out their professional duties in urban areas.³⁸

Data on the educational level at which religious education teachers teach suggest that the dominant group of respondents is employed in primary schools, accounting for 65% of all respondents.

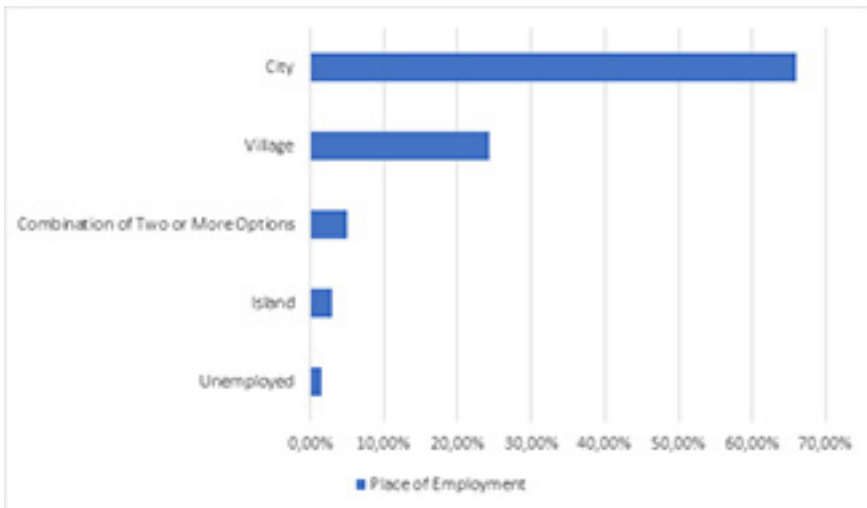
³⁷ Graph 3.

³⁸ Graph 4.

A significant percentage of religious education teachers (26.90%) teach in secondary schools, while a smaller proportion (8.10%) teaches religious education in both primary and secondary schools.³⁹

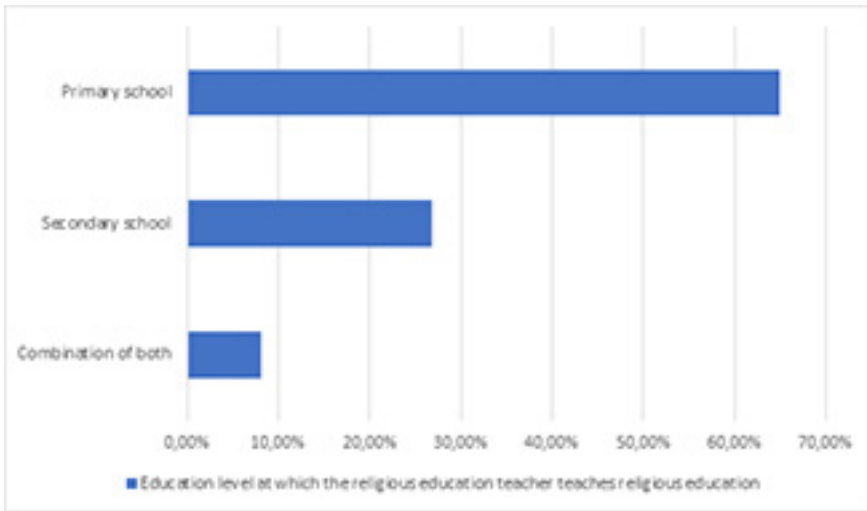


Graph 3. (Arch)Diocese of Employment of Religious Education Teachers



Graph 4. Place of Employment of Religious Education Teachers

³⁹ Graph 5.



Graph 5. Education level at which the religious education teacher teaches religious education

When asked whether they had received education on AI during their studies or professional development, just over two-thirds of the respondents (69.50%) answered negatively, while a smaller percentage (30.50%) responded affirmatively.⁴⁰ Despite the lack of formal education on this topic, the number of respondents who use AI tools in their daily lives is significant. Over 40% of respondents (10.70% regularly and 33% occasionally) use these tools in their daily activities. On the other hand, a significant number of respondents rarely use these tools (32%), while 24.40% of respondents never use such technology.⁴¹

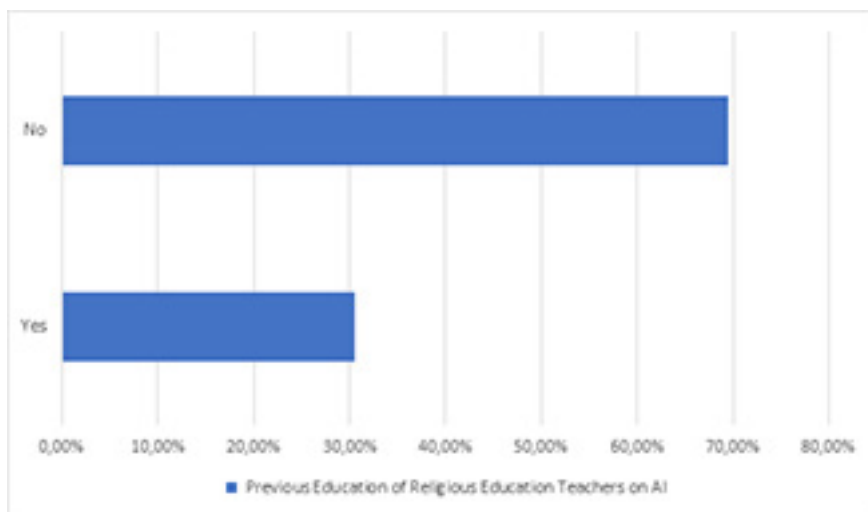
When asked which of the mentioned AI tools they use in their daily lives, the respondents were offered various options, with the possibility of selecting multiple tools or stating that they do not use these technologies. The results show that the majority of religious education teachers use ChatGPT (68%), CanvaAI (29.90%), or some other AI tool (21.80%). A smaller percentage of respondents use AI tools such as Deep Speak (8.10%) and Khan AcademyAI (3%), while 17.30% of religious education teachers state that they do not use any AI tools.⁴²

⁴⁰ Graph 6.

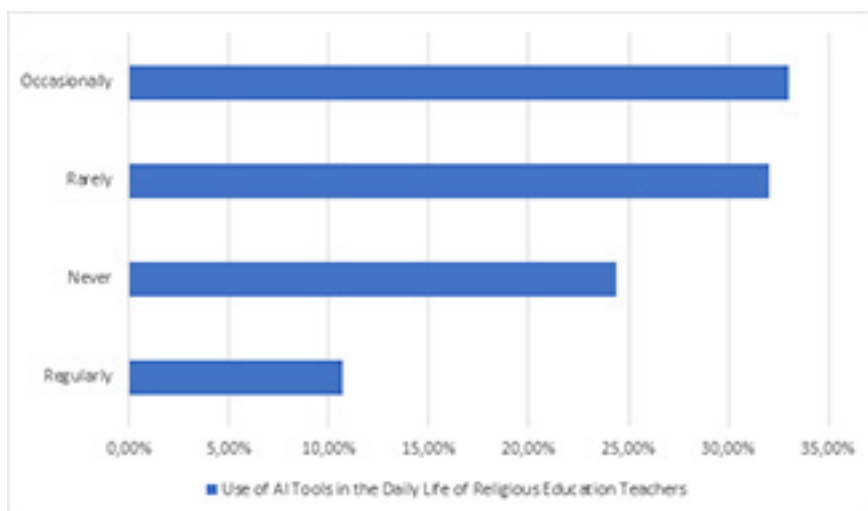
⁴¹ Graph 7.

⁴² Graph 8.

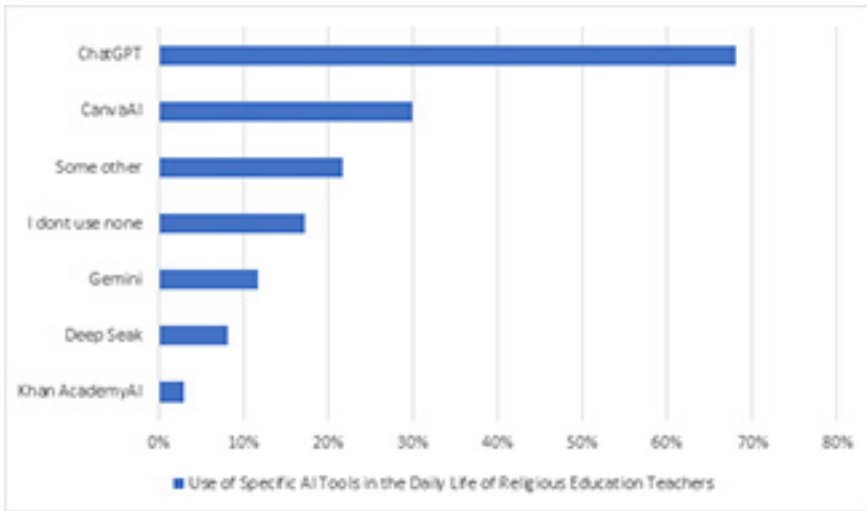
Despite the relative lack of formal education on AI, the results of this research indicate a significant use of AI tools among religious education teachers. These findings also highlight the need for additional education on this technology, given its ubiquitous application in the daily lives of religious education teachers and the tools they rely on.



Graph 6. Previous Education of Religious Education Teachers on AI



Graph 7. Use of AI Tools in the Daily Life of Religious Education Teachers



Graph 8. Use of Specific AI Tools in the Daily Life of Religious Education Teachers

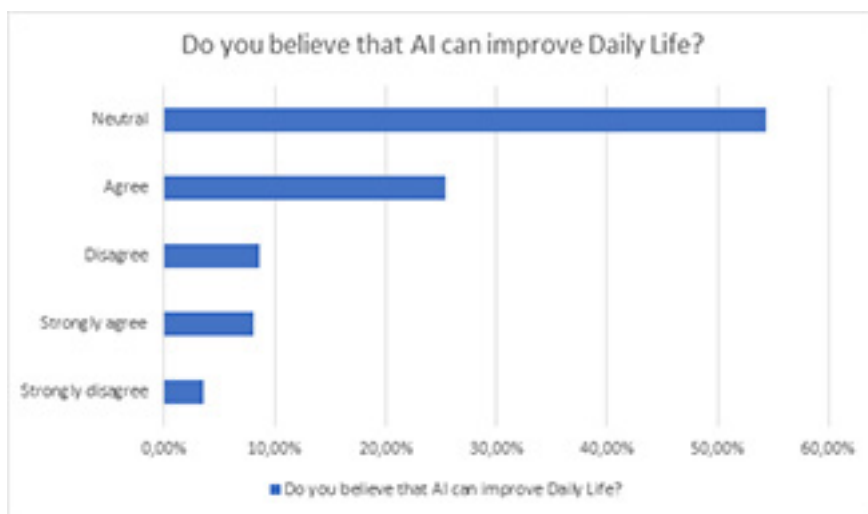
4.2. General Attitudes of Religious Education Teachers Towards AI

After analysing the general characteristics of the respondents, the research focused on examining the attitudes of religious education teachers towards AI, with particular emphasis on their perceptions of its potential to enhance daily activities, their familiarity with how AI technologies function, the need for professional training on the use of AI tools in teaching, and AI's potential contribution to educational processes. This review provides a deeper understanding of religious education teachers' perspectives on integrating AI into their professional and personal lives, as well as its role and potential within the education system. This part of the research aims to test the validity of the first hypothesis, which assumes that religious education teachers, although they have limited knowledge of AI, at the same time recognize its potential for improving the educational process.

More than half of the religious education teachers (54.30%) take a neutral position regarding the statement that AI can positively impact daily life. While a significant number of teachers believe AI can have a beneficial effect on everyday activities (25.40% agree and 8.10% strongly agree), a smaller percentage of respondents

assert that AI offers no benefits (8.60% disagree and 3.60% strongly disagree).⁴³

The cautious or reserved attitude of religious education teachers towards AI can be attributed not only to the lack of formal education⁴⁴ but also to their limited understanding of how AI tools function. Nearly half of the respondents (45.70%) state that they have only a superficial knowledge of these technologies, while 36% report a moderate level of familiarity. On the other hand, only 13.20% of religious education teachers rate their knowledge of AI tools as very good, while 5.10% are entirely unfamiliar with how these tools work.⁴⁵ This limited understanding of AI technology may contribute to some degree of hesitation or scepticism while also highlighting the need for additional education that would enable a more informed approach to this increasingly pervasive technology, as previously emphasised.

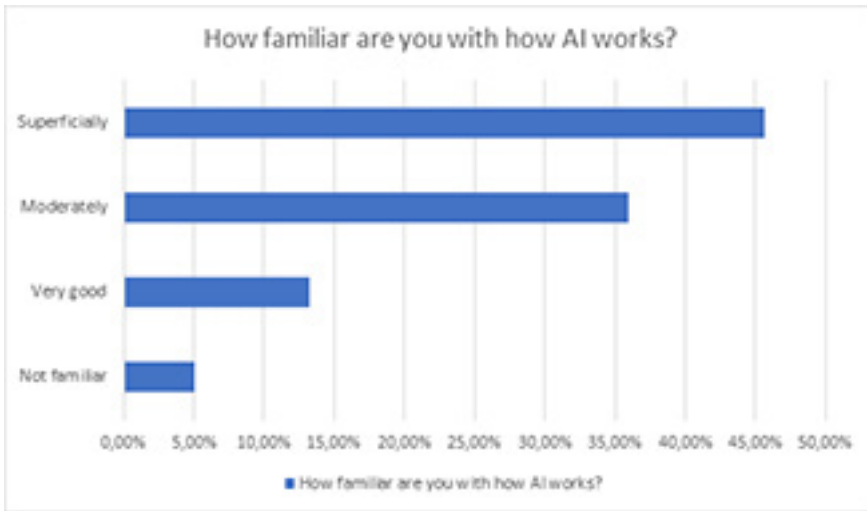


Graph 9. Perception of Religious Education Teachers on the Impact of AI in Daily Life

⁴³ Graph 9.

⁴⁴ Graph 6.

⁴⁵ Graph 10.



Graph 10. Perception of Religious Education Teachers' Level of Familiarity with How AI Works

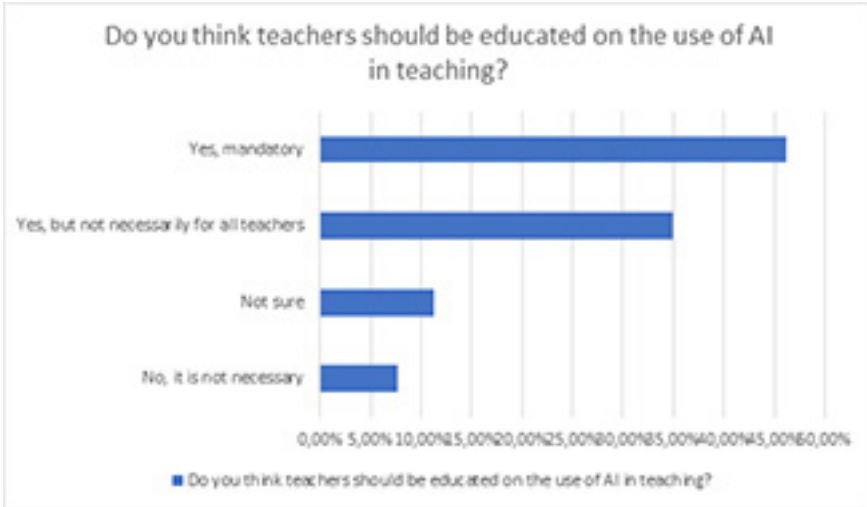
The need for additional education on AI and its tools is also confirmed by respondents' answers, which highlight the importance of professional training in the application of AI technology in teaching.⁴⁶ The research results indicate a high level of consensus among respondents regarding the necessity of AI education for teachers. The vast majority of religious education teachers (81%) believe that such education is necessary, with 46.20% stating that it should be mandatory for all teachers, while 35% think it should be conducted selectively — depending on specific needs and subjects. On the other hand, a smaller portion of respondents (11.20%) did not make a clear decision on this issue, while 7.60% believe that AI education for teaching is unnecessary.

Despite their own limited knowledge of how AI and its tools function, religious education teachers largely recognise its potential to enhance the educational process.⁴⁷ The vast majority of respondents (81.7%) believe that AI can positively contribute to education. Among them, 12.7% think AI's contribution will be significant, while 69% emphasise the need for caution in its implementation. A neutral stand on the role of AI in education is held by 13.7% of respondents, while a minority (4.6%) consider AI to be of no use in this context.

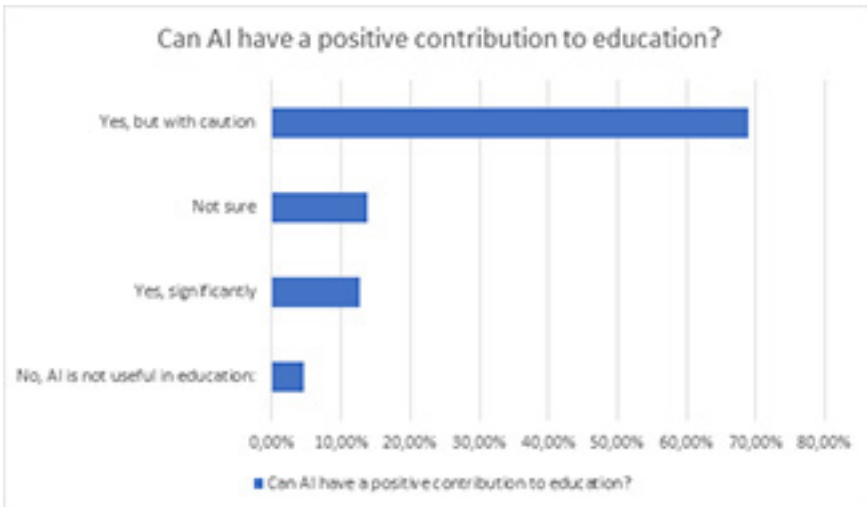
⁴⁶ Graph 11.

⁴⁷ Graph 12.

The data collected and presented in this section of the research confirm the validity of the first hypothesis according to which religious education teachers have limited knowledge of AI, but at the same time recognize its potential in the educational process.



Graph 11. Perception of Religious Education Teachers on the Need for Additional Teacher Training in the Use of AI-Based Tools in Teaching



Graph 12. Perception of Religious Education Teachers on the Positive Contribution of AI to Education

4.3. Trust of Religious Education Teachers in AI in the Context of Religious Education

The development of AI tools brings significant changes to educational processes, as highlighted in the second chapter. The increasing use of these technologies in lesson preparation and delivery raises the issue of religious education teachers' trust in their reliability, particularly when it comes to conveying religious content. Precisely for this reason, it is crucial to examine the perceptions of religious education teachers regarding the role of AI in religious education, as well as its potential and limitations in this specific context.

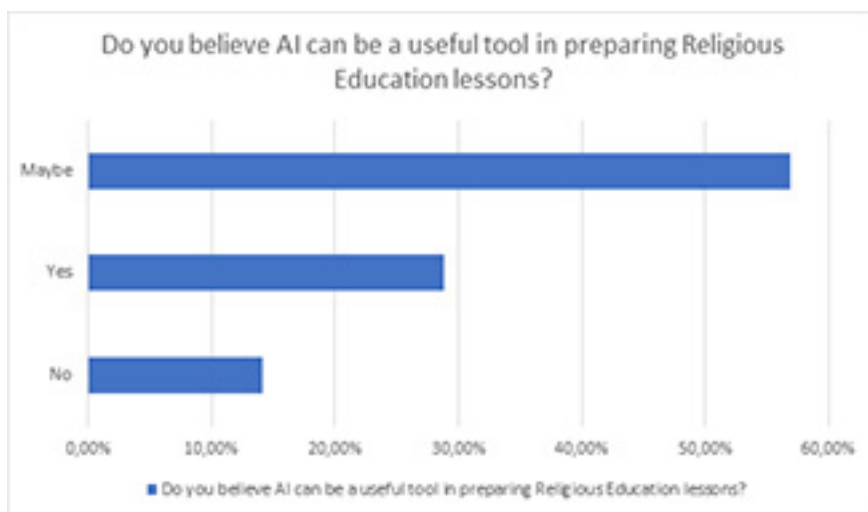
This part analyses religious education teachers' attitudes towards the usefulness of AI tools in lesson preparation, their perceptions of the accuracy and reliability of the answers provided by AI on religious questions, and their personal experiences using AI technology in religious education. Furthermore, the level of trust religious education teachers have in the information generated by AI in the context of religious topics is explored, as well as their opinions on the potential applications of AI in learning about faith and addressing contemporary ethical issues. This analysis provides a deeper understanding of the potential and limitations of AI technology in religious education and clarifies the extent to which religious education teachers perceive AI as a support in their professional work. This part of the study aims to test the validity of the second hypothesis, which assumes that religious education teachers have a low level of trust in AI, especially when it comes to content generated on religious topics.

The analysis of religious education teachers' attitudes towards the usefulness of AI tools in preparing Religious Education lessons shows that the majority of respondents express restraint regarding this topic.⁴⁸ More than half of the respondents (56.90%) are undecided about whether AI tools are useful in lesson preparation, while 28.90% of religious education teachers recognize their usefulness as an additional resource in teaching. On the other hand, a smaller percentage of respondents (14.20%) believes that AI tools are not useful in this function.

Religious education teachers' restraint regarding the perception of usefulness of AI tools in religious education is closely linked to their views on the accuracy and reliability of the answers pro-

⁴⁸ Graph 13.

vided by AI systems to religious questions. Given the nature of AI tools, which are not entirely flawless, it is necessary to always verify the received answers and claims.⁴⁹ According to the conducted research, 25.90% of religious education teachers believe that the answers provided by AI tools are accurate but need to be further verified. More than half of the respondents (53.80%) consider the answers to be sometimes accurate, while 20.30% of teachers believe that the answers are often inaccurate.



Graph 13. Perception of Religious Education Teachers on the Usefulness of AI in Religious Education Teaching

⁴⁹ Emily M. Bender, Timnit Gebru, Angelina McMillan-Major i Shmargaret Shmitchell, On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?, *FAccT '21: Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency*, ACM, New York, 2021., str. 610-623.; Theodore W. Frick, Are We Dupes? Limitations of AI Systems: What Should Educators Do with Them?, *TechTrends*, 68 (2024.) 1, 14-26.



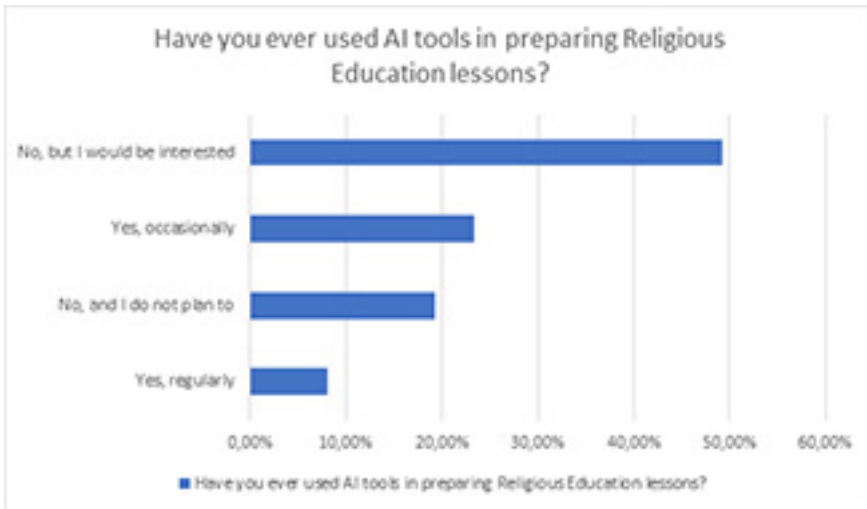
Graph 14. Perception of Religious Education Teachers on the Accuracy and Reliability of AI Tool Responses to Religious Questions

According to the research results, only 31.5% of religious education teachers stated that they have used AI tools in preparing Religious Education lessons, with 8.1% using them regularly and 23.4% occasionally. The majority of respondents (68.5%) indicated that they do not use AI tools. However, it is important to note that 49.2% of the surveyed religious education teachers selected an answer that, although negative, suggests a certain level of interest in the potential application of AI in teaching.⁵⁰

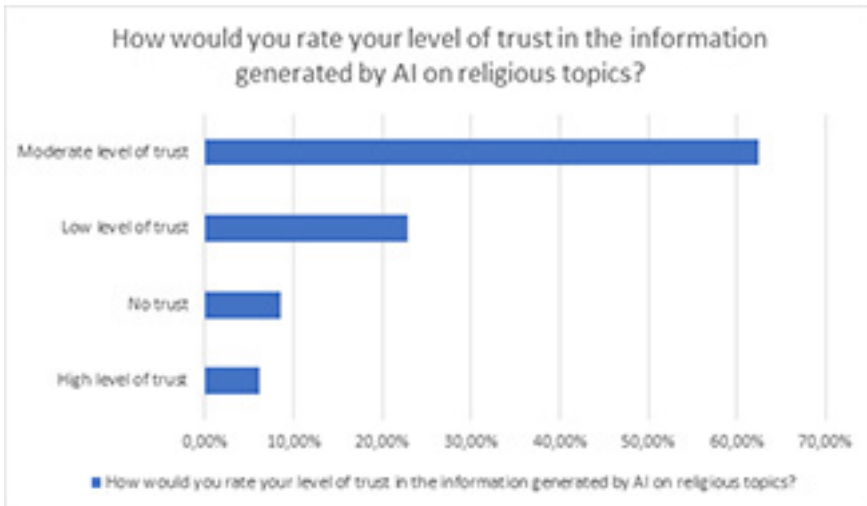
When asked about their level of trust in AI-generated content on religious topics, a majority of teachers (62.4%) reported having a moderate level of trust. This is followed by a group of teachers with a low level of trust (22.8%). Smaller percentages of respondents are found at the opposite ends of the spectrum: 6.1% express a high level of trust, while 8.1% have no trust at all in AI-generated religious content.⁵¹

⁵⁰ Graph 15.

⁵¹ Graph 16.



Graph 15. Use of AI Tools in Preparing Religious Education Lessons by Religious Education Teachers

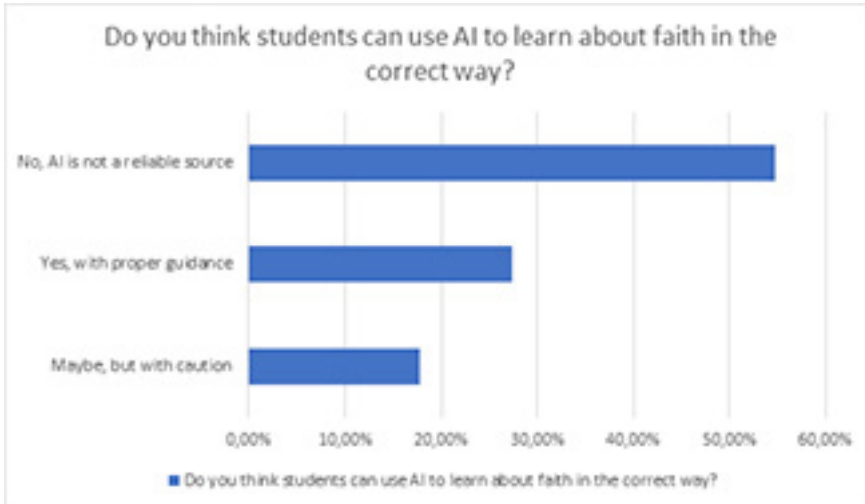


Graph 16. Perceived Level of Trust of Religious Education Teachers in AI-Generated Content on Religious Topics

When asked whether students can use AI to learn about faith in the correct way, most religious education teachers expressed scepticism. The largest share of respondents (54.80%) believes that AI is not a reliable source, indicating a prevailing concern about

the accuracy and theological correctness of content generated by AI tools. On the other hand, a significant portion of teachers (27.40%) believes that students could use AI with proper guidance, suggesting that there is potential for a pedagogically guided integration of AI tools in religious education. A smaller share of respondents (17.80%) took a middle ground, stating that AI could be used, but with particular caution.⁵² Furthermore, almost 75% of religious education teachers believe that AI is not competent enough for such topics, pointing to widespread doubt about AI's ability to interpret complex moral and theological concepts. A smaller portion of respondents (15.70%) acknowledges the possibility of partial support, but with necessary human oversight, while only 10.20% believe that AI could significantly assist in this domain.⁵³

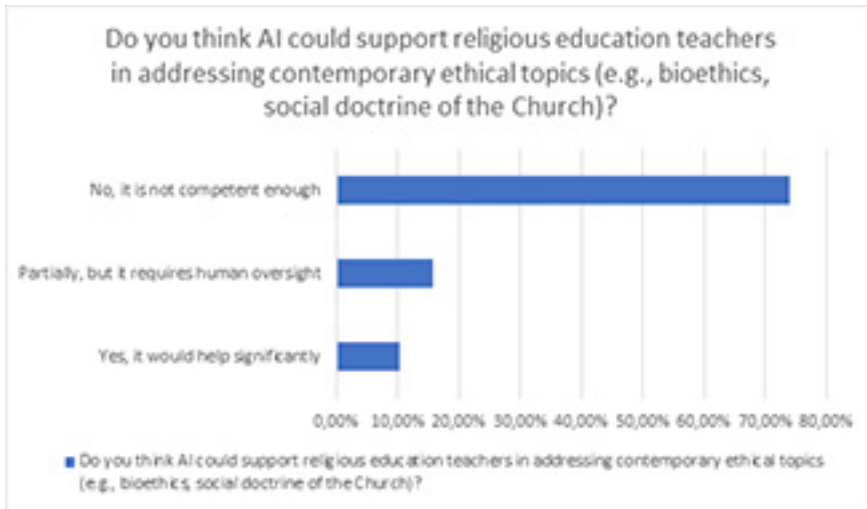
The results presented in this subsection clearly indicate a strong restraint among religious education teachers towards the application of AI tools in religious education. While there are indications of mistrust, especially in the context of students' use of AI and the processing of complex ethical topics, the data do not fully confirm the second hypothesis, which assumes that the majority of respondents express a low level of trust in AI and AI-generated content.



Graph 17. Perception of Religious Education Teachers on the Readiness of Students to Use AI Tools for Learning About Faith

⁵² Graph 17.

⁵³ Graph 18.



Graph 18. Perception of Religious Education Teachers on the Competence of AI Tools in Addressing Contemporary Ethical Topics

4.4. Perception of Teachers' Fear of Using AI in the Educational Process

Technological progress throughout history has often led to the creation of new jobs, but also the loss of existing ones, which required constant adaptation and the acquisition of new skills and competencies. Given the rapid development of AI and its increasing application in educational systems, the question arises of how religious education teachers perceive these changes in the context of their professional roles.

This subsection analyses the views of religious education teachers on their fears related to the integration of AI into the educational process. It examines the perception of teachers regarding the potential replacement of their role by AI in the future and identifies the main concerns they have about using AI tools in education. Additionally, it explores teachers' views on whether students consider AI systems reliable sources of information on faith-related matters, and to what extent teachers feel that AI threatens the authenticity of human transmission of religious values. The answers to these questions allow us to test the validity of the third hypothesis, which assumes that religious education teachers fear that AI could diminish the importance of human transmission of religious values.

According to the research results, a significant number of religious education teachers express the belief that AI will not replace their role in the educational process. More than two-thirds of respondents (72.10%) believe that the religious education teacher will remain irreplaceable and that AI will not be able to fully take over their responsibilities and tasks. On the other hand, 20.80% of teachers are uncertain about this statement and believe that AI might replace religious education teachers, but not entirely. A smaller percentage of respondents (7.10%) expresses the view that AI poses a real threat to their job.⁵⁴ These results indicate that religious education teachers believe AI can be a useful tool in teaching, but according to their perception, it cannot fully replace human interaction and teaching.

The biggest concern related to using AI in education, according to religious education teachers, is the loss of human contact in learning (27.90%), emphasising the importance of personal interaction in the educational process. This is followed by concerns about the accuracy and reliability of the information generated by AI (21.30%), which is considered crucial for maintaining the quality of education. Other concerns include data security and privacy (14.20%) and the possibility of replacing (religious education) teachers with technology (13.70%). Religious education teachers who have no particular fears regarding AI account for 14.70% of respondents, while 8.10% state other concerns not specifically highlighted.⁵⁵

A larger percentage of respondents, 42.10%, believe that students will continue to trust religious education teachers more in religious matters, emphasising the importance of the human factor and authority in transmitting religious values. A slightly smaller percentage, 36.50%, suggests that AI might become relevant but not to a significant extent, indicating that students' trust in religious education teachers will not be entirely undermined. However, 21.30% of respondents believe there is a certain risk, suggesting that students might start to trust AI more, especially due to the technology's ability to provide information and/or answers more quickly.⁵⁶

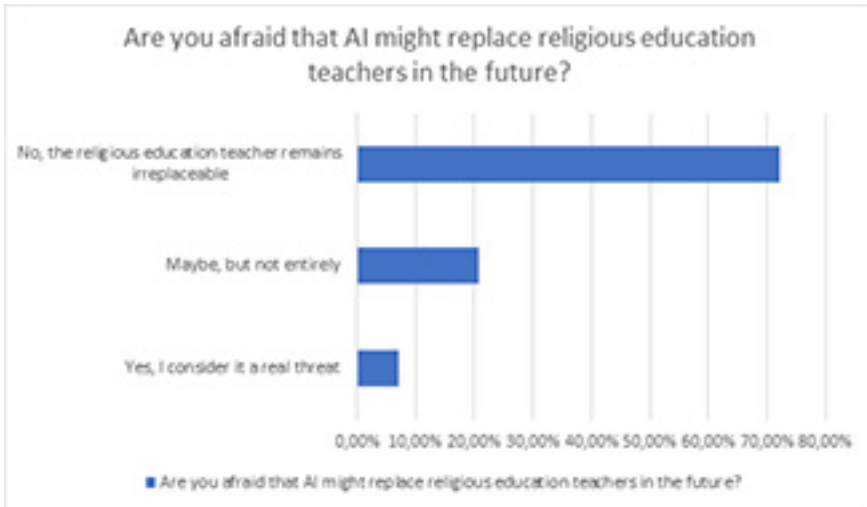
Religious education teachers' distrust towards AI is also reflected in their concerns about the possible impact of AI on the authenticity of human transmission of religious values. A larger percentage of respondents, 44.70%, feel that AI partially threatens this process,

⁵⁴ Graph 19.

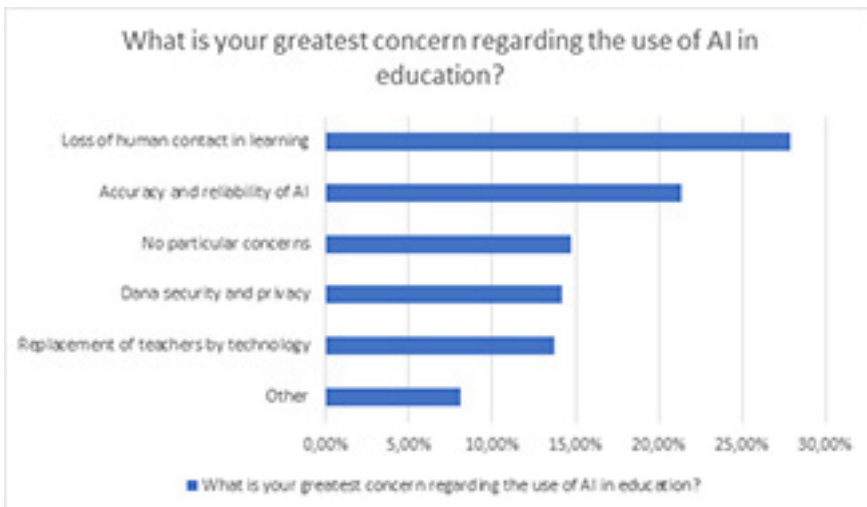
⁵⁵ Graph 20.

⁵⁶ Graph 21.

while 31.50% of teachers do not see any threat from its influence. On the other hand, 23.90% of respondents believe that AI directly threatens the authentic transmission of religious values, indicating concerns about the impact of technology on the deeply human and spiritual dimension of religious education.⁵⁷

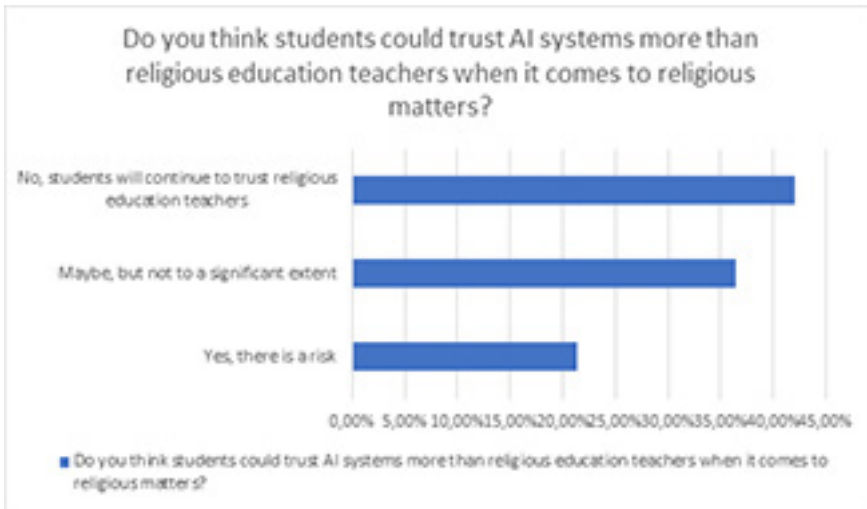


Graph 19. Perception of Religious Education Teachers' Fear of Possible Replacement by AI

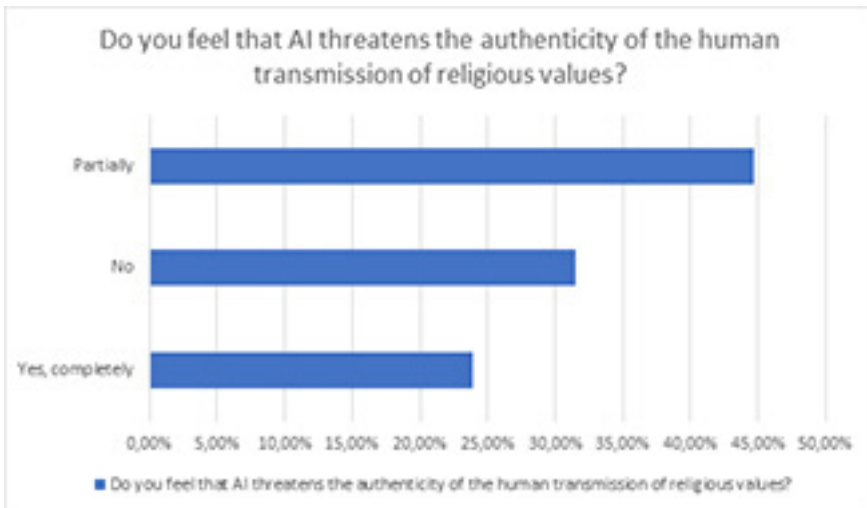


Graph 20. Perception of Religious Education Teachers' Fears About Using AI in Education

⁵⁷ Graph 22.



Graph 21. Perception of religious education teachers about students' trust in AI on religious topics



Graph 22. Perception of religious education teachers about the threat to the authenticity of human transmission of religious values by AI

The research results do not confirm the hypothesis that religious education teachers express concern that AI might diminish the significance of the human transmission of religious values.

Although the majority of respondents believe that AI will not entirely replace their role in the educational process, the perception of fear regarding the potential loss of authenticity inherent to human mediation of religious content is present among a smaller number of participants and is predominantly expressed in a partial form.

4.5. Ethical Issues and the Use of AI in Religious Education

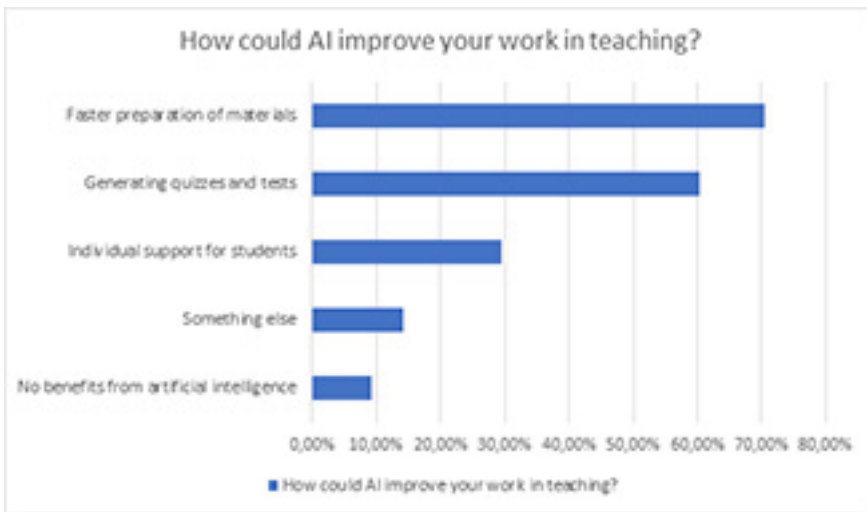
Technological advances in education, particularly in the context of AI tools, raise new ethical questions and challenges related to their use in the educational process. Given the increasing application of AI in education and upbringing, the question arises as to how religious education teachers perceive the moral acceptability of using AI in religious education.

This part explores the views of religious education teachers regarding the potential AI offers for improving teaching, as well as the challenges it presents, especially in the context of interpreting religious texts. Considering the specificity of religious education, particular attention is given to the ethical dilemmas raised by religious education teachers regarding the use of AI to generate religious content. Additionally, the perception of religious education teachers about the need for the Church to take a clearer stand on the integration of AI in the education system is analysed. The study also investigates the opinions of religious education teachers on the necessity of formulating ethical guidelines to govern the use of AI tools in schools. These issues aim to confirm or refute the hypothesis that religious education teachers see the establishment of clear ethical guidelines for AI usage in education as necessary.

When asked how AI could improve their teaching work, religious education teachers provided various responses, with the option to select multiple answers. A significant majority of religious education teachers, 70.60%, believes that AI would most contribute to faster preparation of teaching materials, confirming its potential to increase efficiency in the educational process. A smaller number of respondents, 60.40%, pointed out that AI could be useful in generating quizzes and tests, thereby simplifying the student assessment process. Additionally, 29.40% of religious education teachers see AI as beneficial for providing individualized support to students, opening the possibility for further personalization in religious education. A portion of respondents, 14.20%, did not choose any of the provided options, while the smallest percentage, 9.10%, believes

that they would gain no benefit from using AI.⁵⁸ These responses indicate a significant interest among religious education teachers in applying AI in educational processes, though uncertainties remain regarding its effectiveness and applicability.

Despite the expressed interest in the application of AI for improving teaching, the views on its ability to correctly interpret religious texts are divided, reflecting caution in accepting this technology for such a specific purpose. Nearly half of the religious education teachers, 48.20%, believe that AI can interpret religious texts, but with certain limitations. Around 32% of respondents think that AI does not understand the context of faith, while 19.80% believe that AI can interpret religious texts correctly, but under supervision. The results point to caution among religious education teachers and the need for a careful approach when using AI in the context of religious education.⁵⁹



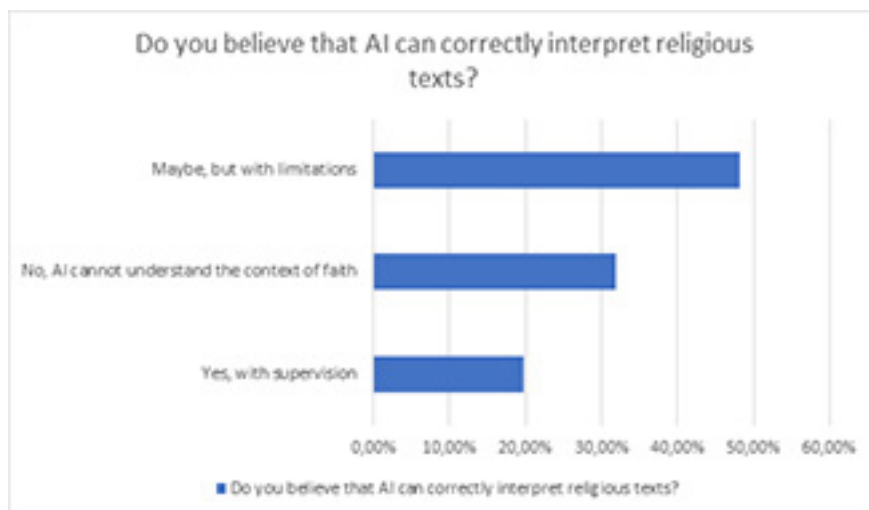
Graph 23. Perception of religious education teachers on the potential of AI to improve religious education

The caution among religious education teachers regarding AI technology and tools becomes particularly evident when their opinion on the moral acceptability of using AI to generate religious content is examined. A majority of religious education teachers, 62.90%, express a degree of uncertainty, likely linked to a lack of

⁵⁸ Graph 23.

⁵⁹ Graph 24.

specific training⁶⁰ and unfamiliarity with how these tools function.⁶¹ Around 21.80% of respondents consider it morally unacceptable to use AI to generate religious content, while 15.20% believe that it is morally acceptable.⁶²



Graph 24. Perception of Religious Education Teachers on the Correctness of AI Interpretation of Religious Texts

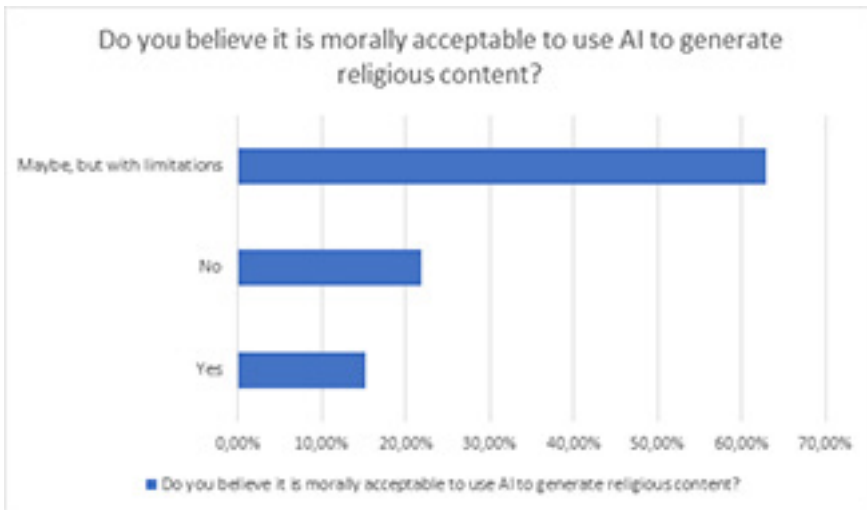
Throughout the entire study, the caution and restraint from religious education teachers is clearly expressed, particularly when it comes to the creation and transmission of religious content using AI. In this context, the question was posed whether religious educators believe that the Church should take a clearer stand on the use of AI in education. The responses to this question were divided: more than half of the respondents, 53.30% to be exact, believe that it is necessary for the Church to take a clearer and more decisive stand on the use of AI in education. On the other hand, 32% of religious educators believe that such a stand may be necessary but is not crucial for everyday practice, while 14.70% believe that there are already sufficient guidelines in this area.⁶³

⁶⁰ Graph 6.

⁶¹ Graph 10.

⁶² Graph 25.

⁶³ Graph 26.

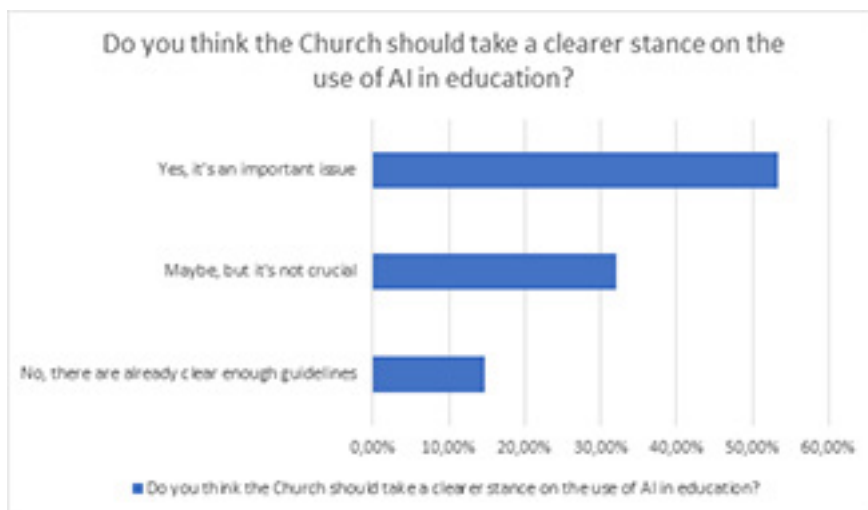


Graph 25. Perception of Religious Education Teachers on the moral acceptability of using AI for generating religious content:

The responses of religious educators to the question about the need for implementing ethical guidelines for working with AI tools in schools indicate their high awareness of the potential risks and challenges technology brings in the educational context. A significant majority, specifically 71.60%, believes that it is necessary to establish ethical guidelines for the use of AI in teaching. On the other hand, a smaller percentage of religious educators, 22.80%, believe that ethical guidelines could be useful, but they do not see it as an urgent issue. The smallest percentage of respondents, 5.60%, believes that AI does not require special guidelines in the educational process.⁶⁴

Based on the obtained results, the hypothesis that religious educators believe it is necessary to establish clear ethical guidelines for using AI in teaching can be confirmed. The majority of religious education teachers express concern regarding the application of AI, particularly in the context of generating and interpreting religious content. Responses to questions about the moral acceptability of using AI in education, the perceived need for clear guidelines from the Church, and the need for formulating ethical guidelines for teaching work all highlight this concern.

⁶⁴ Graph 27.



Graph 26. Perception of the need for the Church to take a clearer stand on the use of AI in education.



Graph 27. Perception of the need for ethical guidelines for working with AI tools in education.

5. CONFIRMATION OF HYPOTHESES

Religious education teachers, who are lay believers and participants of the Facebook group ŠVV took part in this research. A total of 205 teachers from the group, which consists of 1420 members, completed the questionnaire, representing a sample of 14.43%. The dominant group in this research were religious education teachers of middle age⁶⁵, with 5 to 10 years of work experience⁶⁶, employed in urban environments⁶⁷, mostly in primary education⁶⁸. To investigate the trust of religious education teachers in AI, four hypotheses were formed.

The first hypothesis assumed that religious education teachers have limited knowledge of AI, but despite this, they recognise its potential in the educational process. Most respondents did not have prior education about AI (69.60%)⁶⁹, and their use of these tools in everyday life was inconsistent⁷⁰. Only 13.20% of the teachers stated that they were very familiar with the workings of AI⁷¹ and emphasized the need for education in this field, either for all teachers or certain groups of teachers⁷². Despite limited knowledge of AI, the teachers still believe that this system can positively contribute to the educational process (71.7%), but emphasise the need to maintain a certain level of caution⁷³, which ultimately confirms the validity of the first hypothesis. Findings confirming the limited knowledge and use of AI tools among Croatian religious education teachers are consistent with the results of similar studies conducted among teachers in other countries.⁷⁴ Although research indicates

⁶⁵ Graph 1.

⁶⁶ Graph 2.

⁶⁷ Graph 4.

⁶⁸ Graph 5.

⁶⁹ Graph 6.

⁷⁰ Graph 7.

⁷¹ Graph 10.

⁷² Graph 11.

⁷³ Graph 12.

⁷⁴ Usp. Giovanna Cioci, AI in the class: Uses, doubts, challenges and perceptions of a sample of teachers from different nationalities, *Education Sciences and Society*, 2 (2024.), str. 38-55.; Kumar Bohara Dipak and Karna Rana Karna, Unmasking teachers' proficiency in harnessing Artificial Intelligence (AI) for transformative education, *SN Social Sciences*, 4 (2024.), str. 1-21.; Mehmet Yaman i Mehmet Basaran Mehmet, Unveiling Educators' Insights on Artificial Intelligence in Education: A Qualitative Study of Potential, Expectations, and Challenges, *E-Kafkas Journal of Education Research*, 12 (2025.) 1, str. 280-296.

that teachers generally possess limited knowledge of these tools, they simultaneously recognize their educational potential as well as the possible risks associated with their use. In this regard, it can be concluded that it is necessary to work in parallel on establishing a comprehensive teacher training framework⁷⁵ that encompasses professional development at the technological, pedagogical, and content levels. Such a framework should simultaneously foster all three sets of competencies to enable teachers to adapt more effectively to the new educational environment in which AI tools are becoming an indispensable part of the teaching and learning process.

The second hypothesis focused on analysing the religious education teachers' (dis)trust in AI, especially when it comes to religious content generated with its help. The research showed greater restraint among religious education teachers (56.90%) about the usefulness of AI in religious education classes than general distrust (14.20%).⁷⁶ A similar restraint is found in the statements of religious education teachers about the truthfulness of religious content generated by AI systems. Most respondents (62.40%) express a moderate level of trust, while the respondents at the opposite ends of the spectrum are represented in much smaller numbers.⁷⁷ The lowest level of trust was expressed regarding student use of these tools (54.80%)⁷⁸ and using AI when dealing with complex ethical topics (74.10%)⁷⁹. The results indicate a more pronounced restraint than low levels of trust, and therefore, the second hypothesis cannot be fully confirmed. Nevertheless, the expressed caution of Croatian religious education teachers regarding AI-generated content is well-founded. Recent studies have highlighted the significant presence of cognitive biases, errors and limitations in AI systems when processing and presenting religious material.⁸⁰ The potential distortion of religious content through the use of AI tools further emphasises the essential role of the religious education teachers. They remain the primary and responsible figures in guiding students not only in the

⁷⁵ Usp. Ismail Celik, Towards Intelligent-TPACK: An empirical study on teachers' professional knowledge to ethically integrate artificial intelligence (AI)-based tools into education, *Computers in Human Behavior*, 138 (2023.), str. 1-12.

⁷⁶ Graph 13.

⁷⁷ Graph 16.

⁷⁸ Graph 17.

⁷⁹ Graph 18.

⁸⁰ Usp. Jing Zhang, Wenlong Song i Yang Liu, Cognitive bias in generative AI influences religious education, *Scientific reports*, 15 (2025.) 15720, str. 1-15.; Christos Papakostas, Artificial Intelligence in Religious Education: Ethical, Pedagogical, and Theological Perspectives, *Religions*, 16 (2025.) 5, str. 1-22.

acquisition and critical evaluation of content but also as gatekeepers in the formation of Christian values integral to religious education.

The third hypothesis assumed that religious education teachers fear that AI could diminish the authenticity of the human transmission of religious values. However, the majority of respondents do not fear that AI will eventually replace religious education teachers (72.10%)⁸¹, nor do they believe that students will, in general or to a significant extent, place greater trust in such systems (78.6%)⁸². Furthermore, slightly less than one third of respondents (27.90%)⁸³ expressed concern about the loss of human contact in the learning process, and only a quarter (23.90%)⁸⁴ reported fear that AI could seriously jeopardize the authenticity of the human mediation of religious values. In light of these findings, it is not possible to confirm that religious education teachers fear that AI might reduce the importance of human transmission of religious values, which refutes the third hypothesis. The results obtained in this part of the study are consistent with the findings of other similar studies, which confirm that teachers, for the most part, do not believe that AI-based systems will fully replace their role in the classroom.⁸⁵ Reflecting on set hypothesis, we can conclude that the role of religious education teachers will undoubtedly change and expand with the development of AI, but it will never be replaced.⁸⁶ Teaching in religious education is not limited to the mere transmission of information; it encompasses a living and personal dimension of education and upbringing, the formation of conscience, and even spiritual accompaniment - all of which go beyond the capabilities of AI systems.

The fourth hypothesis assumed that religious education teachers consider it necessary to define clear ethical guidelines for using

⁸¹ Graph 19.

⁸² Graph 21.

⁸³ Graph 20.

⁸⁴ Graph 22.

⁸⁵ Usp. Ragip Terzi, An adaptation of artificial intelligence anxiety scale into Turkish: Reliability and validity study, *International Journal of Education and Teaching*, 7 (2020.) 4, str. 1501-1515.; Nadia Satvati, Jaber Kamali, Fatemeh Boldaji, Muhammad Khodadadi i Saeid Akhondi, AI Integration into Language Education and Teacher Identity: An Ecological Perspective, *Language Teaching Research Quarterly*, 47 (2025.), str. 1-19.; Puja Tripathi, Digar S. Farswan, Anjana Basera i Rakhi Tiwari, AI in Classrooms: Impact in Teachers Identity and Autonomy, *Journal of School Educational Technology*, 20 (2025.), str. 39-49.

⁸⁶ Iryna Nikitina i Tetyana Ishchenko, The impact of AI on Teachers: Support or Replacement?, *Scientific Journal of Polonia University*, 65 (2024.) 4, str. 96-97.

AI in teaching. Although most respondents believe that AI tools could assist them in improving their teaching in various ways⁸⁷, a significant number of respondents expressed the opinion that this technology has certain limitations and will not be able to understand the religious context⁸⁸. Most respondents are neutral (62.9%) when it comes to the moral acceptability of using these tools to generate religious content⁸⁹, and they believe that the Church should take a clearer stand on this issue (53.3%)⁹⁰. Ultimately, more than two-thirds of the respondents (71.6%) believe that schools should have clear ethical guidelines for the use AI in teaching⁹¹, which confirms the final hypothesis. Clearly expressed need among teachers for ethical guidelines in using AI systems in education has been confirmed in numerous studies and aligns with the results of our research.⁹² In response to this need, researchers propose various guidelines and models for implementing ethical norms⁹³, with contributions also coming from individuals within the Croatian education system⁹⁴. At the beginning of 2024, an interdisciplinary Committee for the Ethical Application of Digital Technologies and AI in Education was established at the national level. So far, the Committee has introduced two experimental extracurricular cur-

⁸⁷ Graph 23.

⁸⁸ Graph 24.

⁸⁹ Graph 25.

⁹⁰ Graph 26.

⁹¹ Graph 27.

⁹² Usp. Kumar Bohara Dipak and Karna Rana Karna, Unmasking teachers' proficiency in harnessing Artificial Intelligence (AI) for transformative education, str. 1-21.; Afshana Bibi, Shagufta Yamin, Lexter Natividad i Tariq Rafique, Navigating The Ethical Landscape: Ai Integration In Education, *Educational Administration: Theory and and Practice*, 30 (2024.) 6, str. 1579-1585.; Jing Zhang, Wenlong Song i Yang Liu, Cognitive bias in generative AI influences religious education, str. 1-15.

⁹³ Usp. Galya Kozhuharova i Mihail Kozuharov, Ethical Norms for the Use of Artificial Intelligence in Education, Педагогически форум, No. 4 (2024.), str. 3-25.; Ramesh Sharma, Paul Kawachi i Aras Bozkur, The Landscape of Artificial Intelligence in Open, Online and Distance Education: Promises and Concerns, *Asian Journal of Distance Education*, 14 (2019.) 2, str. 1-2.; Azman Özlem i Songul Tümkaya, Navigating the ethical landscape of AI integration in education: Balancing innovation and responsibility, *F1000Research*, 14 (2025.) 299, str. 1-16.

⁹⁴ Usp. Dalia Kager, *Umjetna inteligencija – razvoj i primjena. Priručnik za početno učenje*; Lidija Kralj, Arjana Blažić, Helena Valečić, Sanja Janeš, Valentina Blašković, Nikolina Marinić, Kristina Slišurić, Darija Dasović, Vesna Majdančić i Drako Rakić, *Umjetna inteligencija u obrazovanju. Edukativni priručnik o primjeni umjetne inteligencije u učenju i poučavanju za učitelje, nastavnike i stručne suradnike u školi*.

ricula for primary and secondary schools.⁹⁵ The results of their experimental implementation and potential wider application are yet to be seen, but they certainly represent a commendable initiative for both teachers and students.

CONCLUSION

The research conducted among Croatian religious education teachers provided valuable insight into their attitude towards AI in the context of religious education. The results indicate that despite their limited knowledge of AI technologies⁹⁶, religious education teachers recognize its potential for enhancing the educational process⁹⁷. At the same time, concerns were expressed regarding the reliability of AI in generating and processing religious content⁹⁸, as well as its potential to partially undermine the human element in the transmission of religious values⁹⁹.

One of the key findings is that the vast majority of religious education teachers support the introduction of additional education on AI¹⁰⁰, highlighting the need for permanent professional development in this field. Additionally, the need for clearly defined ethical guidelines regulating the use of AI tools in teaching, particularly in religious education, was confirmed.¹⁰¹ These findings suggest that it is essential to involve theological, pedagogical, and technological experts in the future, in order to create a framework that will ensure the responsible use of AI in education. On that note, a particularly pressing question arises as to how to reconcile the relative slowness of institutional educational change with the accelerating pace of technological development, and how to prevent that AI tools do not outpace pedagogical (and ethical) preparedness of (religious education) teachers.

⁹⁵ Usp. CARNET, *Umjetna inteligencija: od koncepta do primjene. Kurikulum za izvannastavne aktivnosti za osnovne škole*, Hrvatska akademska i istraživačka mreža – CARNET, Zagreb, 2024.; CARNET, *Kurikulum fakultativnog predmeta za srednje škole. Umjetna inteligencija: od koncepta do primjene*, Hrvatska akademska i istraživačka mreža – CARNET., Zagreb, 2024.

⁹⁶ Graphs 6. i 10.

⁹⁷ Graph 12.

⁹⁸ Graphs 14., 16., 17., 24.

⁹⁹ Graphs 20. i 22.

¹⁰⁰ Graph 11.

¹⁰¹ Graphs 26. i 27.

The research consistently pointed to the reserved attitude of religious education teachers towards AI tools, as well as a significant lack of trust in their application in dealing with sensitive ethical and theological topics.¹⁰² While some teachers are open to the possibilities AI offers¹⁰³, the prevailing stand emphasises a critical approach and human oversight over AI-generated religious content.¹⁰⁴ These findings indicate the necessity of further education and professional training with the aim of developing a blended teaching model in which AI plays a supportive role, empowering both teachers and students in the learning and teaching process.

In conclusion, the results of this research highlight the need for a thoughtful and responsible integration of AI into the education system – especially in religious education. While such systems offer significant opportunities for improving teaching, their implementation should be accompanied by continuous education and the development of critical thinking among those who use these tools. Despite the scepticism expressed among Croatian religious education teachers towards AI, they also show a certain openness and willingness to adopt these technologies. Their readiness to learn and adapt suggests that, with appropriate support and expert guidance, AI could become a valuable tool in religious education through: innovative methodical and didactic approaches, personalisation of learning process, and the support provided to students with diverse needs.

This study is limited in its nature and represents only an initial point from which further research on this topic can be developed. Several possible directions may be pursued, including: a qualitative discourse analysis of Croatians religious education teachers' (mis) trust towards AI; a comparative study adapted to teachers of other school subjects; quantitative and qualitative investigations among students regarding their use of AI tools in their religious education; parents' and pastoral workers' perceptions of AI tools when talking about faith etc. Such research would not only broaden the empirical basis for understanding AI integration in religious education but also provide valuable insights for developing pedagogical strategies, ethical guidelines, and policy recommendations that ensure the responsible, contextually sensitive, and theologically sound use of AI in faith-based teaching and learning.

¹⁰² Graph 18.

¹⁰³ Graph 23.

¹⁰⁴ Graph 17.

POVJERENJE HRVATSKIH VJEROUČITELJA U UMJETNU INTELIGENCIJU

Sažetak

Umjetna inteligencija (dalje: AI) i AI alati temeljeni na njoj postali su neizostavni dio suvremenog društva te nalaze sve širu primjenu u odgojno-obrazovnom sustavu, kako među učiteljima, tako i među učenicima. Ovaj rad analizira stavove i povjerenje hrvatskih vjeroučitelja prema primjeni AI alata u svakodnevnom životu i našetavi Katoličkog vjeronauka. Empirijsko istraživanje provedeno je metodom anketiranja među 1400 vjeroučitelja okupljenih u Facebook grupi „Školski vjeronauk – Vjeroučitelji“, pri čemu je anketu anonimno ispunilo 205 sudionika (14,43%) tijekom veljače 2025. godine. Rezultati ukazuju na ambivalentan odnos vjeroučitelja prema AI-u. Unatoč slabijem poznavanju AI-a oni i dalje prepoznaju potencijal koji isti sa sobom nose. Uz navedeno, vjeroučitelji istovremeno izražavaju određenu dozu suzdržanosti, poglavito kada je u pitanju generiranje i obrada sadržaja vjerske tematike, premda u konačnici ne strahuju da će ih ovi alati u budućnosti zamijeniti. Ključna zabrinutost vjeroučitelja odnosi se na moguće smanjenje interpersonalne dimenzije nastave te naglašavanje potrebe za formiranjem jasnijih etičkih smjernicama pri integraciji AI alata u odgojno-obrazovni sustav.

Ključne riječi: Umjetna inteligencija, vjeroučitelji, Katolički vjeronauk, povjerenje