

ARTICLE OPEN ACCESS

Ambivalent Perceptions of Artificial Intelligence in Religious Education: A Comparative Study Among Teachers in Germany and Poland

Mariusz Chrostowski¹  | Paweł Mąkosza² 

¹Faculty of Theology, Catholic University of Eichstätt-Ingolstadt, Eichstätt, Germany | ²Faculty of Theology, John Paul II Catholic University of Lublin, Lublin, Poland

Correspondence: Mariusz Chrostowski (mariusz.chrostowski@ku.de)

Received: 30 June 2025 | **Revised:** 5 October 2025 | **Accepted:** 26 November 2025

Keywords: artificial intelligence | digital competences | Germany | Poland | religious education | teachers

ABSTRACT

This article examines the perception of artificial intelligence (AI) in religious education, comparing the views of Catholic religion teachers in Germany and Poland. The analysis focuses mainly on generative AI, particularly large language models (LLMs) such as ChatGPT or Claude, which have recently transformed educational and communicative practices. As one of the most rapidly advancing technologies, generative AI evokes both hope and apprehension in the context of faith transmission, spiritual development and religious education. Quantitative research was conducted to identify current similarities and differences in the perception of AI in these two countries, and to determine the factors influencing the readiness of RE teachers ($n = 236$) to incorporate AI into their teaching approaches. The results reveal ambivalence: while teachers recognize AI's potential to personalize teaching and engage students, they also highlight risks such as the oversimplification of religious content, ethical threats and the potential weakening of the spiritual dimension of religious education. Cultural and systemic differences influence the degree of AI acceptance, with digital competence and professional experience proving to be key determinants of openness. The authors make recommendations regarding teacher training and support, emphasizing the importance of consciously and critically integrating AI into religious education theory and practice.

1 | Introduction

In recent years, artificial intelligence (AI)—particularly generative AI—has become a central topic in public, academic, and media debates. The release of the ChatGPT model in November 2022 marked a turning point, significantly boosting global interest in AI. Since then, awareness of its transformative potential has grown, as has ambivalence toward it. While AI is widely recognized for its potential in problem-solving, communication, and scientific research, serious ethical, social, and existential challenges have also been identified (Bozkurt and Gursoy 2025; Pei et al. 2025).

The dynamics of this debate also extend to education, including religious education (RE). This is considered a particularly “sensitive” area in terms of worldview (Khoa and Nguyen 2021; Platow 2022; Chrostowski 2023; Chyłka 2024; Mujiono and Wibowo 2024; Chrostowski and Heger 2025; Zhang et al. 2025; Papakostas 2025). As RE is founded on the principles of a specific religious doctrine, the application of AI in this context is a contentious issue. This raises questions about the theological accuracy of the content generated (Dimara et al. 2024; Smith 2024), dilemmas concerning agency in human–machine interaction (Nord 2024; El Okoronkwo and Dike 2025), and the effect on personal religious beliefs (Kozak and Fel 2024; Yakut 2025).

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2026 The Author(s). *Teaching Theology & Religion* published by John Wiley & Sons Ltd.

Despite an increasing number of analyses, there is still a lack of in-depth, comparative studies considering the attitudes of RE teachers toward AI in different cultural and systemic contexts. This article addresses this issue by presenting the findings of a study of RE teachers in Germany and Poland. The selection of these two countries is deliberate: they have different institutional models of RE and different social roles for religion (Chrostowski 2021, 2025b). This enables us to capture the complexity of the factors influencing readiness to implement technology. RE teachers play a pivotal role in this process: their beliefs, digital competencies, and attitudes toward innovation can act as both an impetus for and a barrier to educational change (Kurata et al. 2025; Lindner et al. 2019).

To explore the research problem in sufficient depth, the article is divided into four consecutive sections. First, the research background is outlined, including the comparative contexts and the discourse surrounding AI in RE, followed by an analysis of RE teachers' current attitudes and opinions toward this technology. Next, the research questions arising from the previous analysis are presented. The third section describes the methodology employed, including the data collection techniques and characteristics of the sample. The fourth section presents the results of the study, demonstrating the similarities and differences in the approaches of RE teachers in both countries. The study concludes with recommendations for educational policy and teaching practice to support teachers in integrating AI into RE.

As a preliminary methodological note, the term AI in this study primarily refers to AI systems based on large language models (LLMs), which represent the most relevant and widely used form of generative AI in educational contexts (UNESCO 2021, 2024). Other AI technologies are mentioned only for comparative purposes.

2 | Research Background

Before examining teachers' readiness to integrate AI into RE, it is worth considering the structure of the subject and the academic debate surrounding it in Germany and Poland. A comparative approach provides a solid basis for analyzing how AI is perceived in both educational contexts.

2.1 | Comparative Contexts and Research Discourse on AI in RE

Germany and Poland offer two models of RE that, while both embedded in public education and confessionally oriented, differ significantly in terms of institutional frameworks, pedagogical goals, and cultural contexts (Chrostowski 2021, 2025b). Germany's RE operates in a highly secularized environment and is increasingly challenged by demands for pluralization and justification (Domsgen and Witten 2022; Kropač and Schambeck 2022). In contrast, RE in Poland remains closely connected to the Catholic Church's catechetical vision (Małosa 2015, 2024; Małosa and Adamczyk 2024; Cukras-Stelągowska et al. 2025; Horowski 2022), though it too is affected by changing social and political dynamics (Stanisz 2025; Polish Episcopal Conference 2024).

These systemic differences are reflected in curricula and teaching practice. In Germany, Catholic RE follows a tripartite aim: providing theological knowledge, introducing faith practices, and fostering critical engagement with religion (Secretariat of the German Bishops' Conference 2005, 2016). In Poland, RE follows a catechetical model, emphasizing evangelization, doctrinal instruction, and initiation into Christian life and witness (Chrostowski 2025b, 300–302; cf. also Polish Bishops' Conference 2005 2018, 2019). Yet both systems share key structural elements: confessionally oriented RE is guaranteed in public schools, teachers require ecclesiastical approval (*missio canonica*), and curricula are developed in cooperation with the Church—albeit with differing approaches to assessment and integration into the broader educational system (Chrostowski 2021, 181–184; 2025b, 300; see also Domsgen and Witten 2022, 18–19; Janiga and Mezglewski 2019, 146–155).

The contextualization and operationalization outlined above largely define the framework for understanding AI as both a tool and a subject in RE in Germany and Poland. Notably, AI is an interdisciplinary field of science with origins dating back to 1956. Through the collaboration of computer science, mathematics, philosophy, and neuroscience, AI has developed with the aim of modeling human cognitive processes in computational systems. It currently encompasses areas such as machine learning, natural language processing, and vision systems (Casal-Otero et al. 2023, 2) and is being increasingly applied in RE. Within this broader field, generative AI—especially LLMs—has recently gained particular relevance, offering new forms of interaction and content generation that directly affect educational practices (Yusu et al. 2024; Ng et al. 2025).

When comparing the religious-pedagogical and religious-didactic discourses on AI religion in Germany and Poland, it is evident that there is significantly more interest among researchers and teachers in this area in Germany. As M. Chrostowski and J. Heger (2025) have noted, as with the broader scope of RE in digital culture, three main theoretical and practical areas can be identified in current German research on RE in the context of AI (however, empirical research in this field remains limited):

- a. *Theological and ethical issues*: questions concerning the image of God, humanity, and the world in the context of AI, including transhumanism, posthumanism, and human enhancement (Fabricius 2021; Grümme 2022; Gärtner 2022; Fock 2024; Chrostowski 2024a; Chrostowski and Fock 2025). Discussions also encompass the fragmentation of identity (Platow 2021), the reinforcement of stereotypes by algorithms and violations of human dignity (Zweig 2020), as well as the notion that technology cannot fully encapsulate human existence (Pirker 2019, 2023). Practical articles (Walldorf 2020; Otten and Paeßens 2022; Hassel 2022; Harbecke 2022) demonstrate ways to encourage students to engage in responsible discussions about AI that are grounded in the biblical-Christian tradition.
- b. *Didactic and methodological issues*: The potential of AI in RE is highlighted, including personalization, interactivity, and the ability to access information quickly. However, its limitations are also considered, such as the potential for misinformation, the erosion of interpersonal

relationships, and the undermining of student subjectivity (Chrostowski 2023; Kluge 2023; Termin 2024; Mayrhofer 2024; Kunz 2024; Heger 2025). The literature emphasizes the need for critical reflection on technology and its conscious integration into RE. Examples of applications include using ChatGPT to teach the Bible and encourage critical thinking (Heger 2023; Chrostowski and Najda 2024; Chrostowski 2024c). Other research includes investigating the use of AI robots for interactive teaching (Chrostowski 2025b; Fabricius 2025) and considering the potential of the metaverse for spiritual learning (Schlag and Yadav 2023). Furthermore, some materials advocate a thematic approach to AI in RE (Palkowitsch-Kühl and Leven 2020; Meinen 2023; RPI-Virtuell 2025; Relilab 2025). Building on this, Chrostowski (2025a) proposes a four-dimensional model of AI literacy comprising understanding, application, reflection, and co-creation.

- c. *Teacher training and professional development:* Existing studies on this topic are scattered. For example, Heger (2023) analyses the use of ChatGPT at theological universities, and Nord and Palkowitsch-Kühl (2018) emphasize the need for digital professionalization in light of changing communication methods. Lindner (2023) draws attention to the importance of digital sovereignty and adaptability in the face of digital challenges. Chrostowski (2025a) introduces the concept of “AI leadership,” presenting RE teachers as leaders who foster critical thinking among their students in the context of AI developments.

In Poland, research into the use of AI in RE is still in its infancy, both theoretically and empirically. The debate on this topic has not been developed as much as it has in Germany. One possible reason for this is Poland’s conservative catechetical model, which emphasizes oral communication and personal contact between teachers and students for initiation and evangelization purposes (Małkosa 2015, 53–66). Only a few studies in Polish specialist literature address the topic. For example, the 21st issue of the journal “Katecheza” (2023) discusses the potential applications of AI in RE, and Małkosa et al. (2024, 133) briefly mention its methodological and didactic advantages. Similarly, in his summary of an article on the challenges of contemporary catechesis, Czekalski (2023, 328) states that AI is bringing about a profound change in contemporary lifestyles. This trend is also indirectly reflected in the study by Bukowski and Klonowska (2024), in which the authors attempt to answer the question of whether AI will become the next deity, and if so, what effect this will have on education and interpersonal relationships. From a broader theological perspective, issues such as transhumanism and posthumanism (Machinek 2022; Sznajder 2023; Roszak 2024), the impact of AI on the development of virtues (Lipski 2023), ethical and philosophical considerations (Kuciński 2021; Zatwardnicki 2023), pastoral concerns (Przygoda 2024), and the relationship between religiosity and AI (Kozak and Fel 2024) have been explored. Despite this, none of these studies consider RE. Nevertheless, numerous publications exist on the digitization of RE (Małkosa 2014, 2024; Bilicka and Gurzyński 2019; Turek 2020; Mazur 2021; Adamski 2021; Zajac 2024). In contrast to the intense discourse in Germany, the lack of reflection on AI in RE in Poland highlights the need for a broader understanding of the socio-cultural factors affecting

teachers’ readiness to integrate new technologies, as well as institutional and didactic conditions.

Concerning confessional RE in Germany and Poland, attention should also be given to the Church’s current stance on AI, which is exerting an increasingly significant influence on both theological and educational discourse. The recent Vatican Note *Antiqua et Nova* (Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education 2025) provides valuable insights into the anthropological and pedagogical implications of AI within Catholic contexts. The Note understands education as an integral process of human formation, rather than merely the transmission of knowledge and skills (*ibid.*, 77–78), and emphasizes the irreplaceable relationship between teacher and student as the core of genuine education (*ibid.*, 79). It also recognizes that AI can serve as a valuable educational resource, but only when used prudently and transparently. For confessional RE, this implies that AI should support, rather than replace, the formative and testimonial dimensions of teaching, while always respecting human dignity, the authenticity of testimony, and the relational character of personal faith formation within the teaching encounter (*ibid.*, 80–84).

2.2 | Perception of AI Among (RE) Teachers

In light of the discussion of systemic conditions and the review of relevant literature, it is now worthwhile to briefly analyze the reception of AI among (RE) teachers. This primarily focuses on teachers of various subjects in different contexts, given the current lack of research on this topic among RE teachers in Germany and Poland.

Some interesting results were obtained from a cross-sectional study conducted by Bergdahl et al. (2023) in six European countries ($n=9806$), including Germany ($n=1529$) and Poland ($n=1533$). The study found that Poles had a slightly more positive attitude toward AI than Germans, as reflected in their average “AI positivity” scores ($M=4.54$ vs. $M=4.48$) and lower “AI negativity” scores ($M=3.94$ vs. $M=4.14$) (*ibid.*, 5). Analysis showed that levels of “AI positivity” and “AI negativity” were significantly associated with the fulfillment of three basic psychological needs—autonomy, competence, and relatedness—as identified in Self-Determination Theory, regardless of country. In particular, higher satisfaction of the needs for competence and relatedness was associated with higher levels of “AI positivity” and lower “AI negativity” ($p<0.001$) when comparing Germany and Poland. Additionally, a higher sense of autonomy was associated with lower levels of “AI negativity” in both countries (*ibid.*, 9).

For comparison, Kurata et al. (2025) conducted a qualitative study with 20 RE teachers from secondary schools in Lesotho (Republic of South Africa). The respondents emphasized the many benefits of integrating AI into RE. One such benefit was personalized learning, which could be achieved by adapting materials to students’ learning styles and language. Other advantages included providing instant feedback and offering access to virtual educational experiences, such as simulations and virtual visits to places of worship (*ibid.*, 7–9). AI was also considered a valuable tool for supporting students to learn at their own pace,

thereby promoting independence and engagement (ibid., 9–10). However, the teachers also identified significant challenges, including infrastructure deficiencies (e.g., lack of equipment and poor internet connections), shortage of teaching resources, and theological risks (e.g., concern that technology could detract from the spiritual nature of teaching) (ibid., 4, 13, 17). The need for appropriate teacher training, as well as the necessity of integrating educational technologies politically and culturally, was also emphasized (ibid., 12–13). The teacher's role has evolved into that of a “facilitator,” with students becoming more independent and active participants in the learning process.

Similar tensions arise between the functionality of AI and its ethical and spiritual limitations in a Christian educational context. Hana and Lie (2024) highlight the potential for personalizing RE, while also acknowledging the risk of marginalizing the role of humans in the educational process. They argue for the establishment of a clear ethical framework for the use of AI in Christian RE (ibid.).

3 | Research Questions

The following research questions were formulated based on the above premises to capture the perceptions and readiness of RE teachers regarding the integration of AI into their teaching practice:

1. How do RE teachers in Germany and Poland perceive the role of AI in RE concerning transmitting faith, reflecting on spirituality and the image of God?
2. What benefits and risks do RE teachers see in the use of AI, and how do these assessments differ depending on systemic and cultural-religious conditions?
3. Which factors, such as digital competence, professional experience, the type of school, or demographic variables, influence RE teachers' readiness to implement AI in their teaching practice?

These questions form the basis for an empirical study. The methodology of this study is discussed in the next chapter.

4 | Method

We conducted an exploratory and comparative study using quantitative methods. The study examined the perceptions of RE teachers regarding the use of AI in RE within two distinct systemic and cultural contexts: Germany and Poland. The research tool was an original questionnaire developed based on a literature review and prior qualitative research, including the Meta AI Literacy Scale from Carolus et al. (2023). The questionnaire comprised mainly closed questions (single or multiple choice and Likert scales), covering five themes: (1) knowledge of AI and digital competence; (2) attitudes toward AI; (3) perception of AI in a religious context; (4) educational applications; and (5) training needs. However, the study was limited by the fact that the survey was not preceded by a pilot test. During the survey, generative AI—especially LLMs such as ChatGPT—were the most commonly recognized tools

among teachers, which aligns with recent findings indicating that LLM-based systems dominate teachers' awareness of AI applications in education (Zormanova and Vavříková 2025; Beutner 2025). Several questionnaire items consequently referred to these LLM-based applications, including examples of lesson planning, text generation, and feedback assistance. Other forms of AI were mentioned only marginally for comparative purposes.

A total of 236 RE teachers participated in the study. Of these, 134 were from Poland and 102 were from Germany. The sample was deliberately selected. The survey was addressed to practicing Catholic RE teachers, who were recruited through professional networks and advertisements in educational circles. Data were collected in the first quarter of 2025 using the LimeSurvey platform. Participation in the survey was voluntary and anonymous, and informed consent was obtained from all respondents. Ethical approval for the research was obtained from the Ethics Committee of the Catholic University of Lublin.

The respondents were employed in both primary and secondary schools. Among the RE teachers in the Polish sample, 50.7% worked in primary schools, compared to 49.3% in secondary schools. In Germany, the respective figures were 45.1% and 54.9%. The participants had varied professional experience. In the Polish group, the distribution of work experience was as follows: up to 5 years—7.5%; 6–10 years—17.9%; 11–20 years—35.1%; and over 20 years—39.6%. In the German group, the distribution was as follows: up to 5 years—5.9%; 6–10 years—11.8%; 11–20 years—27.5%; over 20 years—54.9%. These data indicate that, on average, German RE teachers were more experienced than their Polish counterparts. Women predominated in both samples, reflecting the employment structure of RE teachers. In the Polish group, 78.3% of respondents were women and 21.7% were men, whereas in the German group, the respective figures were 72.5% and 27.5%.

The collected data were subjected to statistical analysis using the following non-parametric tests: the Mann–Whitney U test for intergroup comparisons; the chi-squared test for categorical variables; and the Spearman rank correlation coefficient for ordinal variables. A significance level of $\alpha=0.05$ was adopted. Given the exploratory nature of the study and the novelty of the topic, it is recommended that the tool used in future quantitative and qualitative studies undergo further validation.

5 | Analysis of Empirical Data and Discussion

The following analysis compares the two groups under study, taking into account the following key areas: (1) the benefits and risks associated with AI; (2) the impact of AI on spiritual experiences and the image of God; (3) concerns about the simplification of content and the personalization of the teaching process; and (4) the relationship between digital competence, demographic factors, and openness to AI. The results are presented in separate subsections, together with a contextualized discussion and interpretation. Finally, the limitations of the study are presented (5).

5.1 | Assessment of the Benefits and Risks of AI

RE teachers surveyed in both countries demonstrated an ambivalent opinion of AI, recognizing its potential benefits and risks. The vast majority of respondents (82.4% in Germany and 55.2% in Poland) acknowledged that the development of AI could have both positive and negative effects. This indicates a cautious position. Teachers generally do not view AI as wholly beneficial or entirely threatening; rather, they emphasize the complex balance of advantages and disadvantages. This balanced point of view reflects the ambivalence toward new technologies that is widely observed in the literature. In other words, RE teachers recognize AI's potential to enhance teaching methods, as well as its potential ethical implications (Lindner et al. 2019; Bergdahl et al. 2023; Hana and Lie 2024; Kurata et al. 2025). However, it is significant that differences in the degree of certainty of these opinions have emerged between countries. Polish RE teachers are more likely to hold extreme views: 22.4% believe that AI will bring more risks than benefits, compared to 7.8% in Germany. Slightly more respondents from Poland also see the benefits as outweighing the risks (14.2% vs. 7.8% in Germany). These differences in cultural narratives about AI can be interpreted in the context of different social discourses. In Poland, for instance, the debate surrounding the integration of new technologies into RE may give rise to heightened ethical and ideological concerns owing to the prevalent influence of Catholicism. In contrast, the German approach appears more pragmatic and balanced. This result aligns with studies conducted by the Centre for Public Opinion Research (2024) in Poland and by Cousseran et al. (2023) in Germany, among others. A similar cultural dimension was noted in a study by Syukur et al. (2024), which compared Islamic universities in Indonesia and Thailand. Despite AI not being formally integrated into the curriculum, students and staff in Indonesia are more enthusiastic about using it. In contrast, caution prevails in Thailand, linked to concerns about the erosion of religious values and the decline of the authority of RE teachers (Syukur et al. 2024).

Clear differences also emerged when the specific benefits of AI were compared. Although RE teachers in both countries generally identified similar advantages, such as automating administrative tasks and making lessons more engaging, the frequency with which individual benefits were selected differed statistically. For instance, German RE teachers were much more likely to value AI's help with creating tests and quizzes: 78.4% of them found this feature useful, compared to 59.7% of Polish RE teachers. This difference is significant ($\chi^2 = 8.468$; $p = 0.004$), suggesting a stronger belief in Germany in the usefulness of AI for automating assessment and test preparation. This may be related to the greater emphasis placed on efficiency and standardization in the German education system (Hartong 2016), or it may simply reflect greater awareness of available AI-based quiz tools. Conversely, Polish RE teachers more often cited the ability to quickly create teaching materials (e.g., presentations) using AI as an advantage. This benefit was indicated by 56.0% of Polish respondents, compared to 42.2% of German respondents. This difference was also found to be statistically significant ($\chi^2 = 3.885$; $p = 0.049$). It is possible that Polish RE teachers, especially those teaching in primary schools, more often have to prepare visually appealing resources (e.g., presentations, posters, and materials for younger children), and therefore value AI assistance in this

area more highly. Another interesting result was obtained regarding the use of AI in timetable planning. 36.3% of German RE teachers indicated this as a benefit, compared to just 5.2% of Polish teachers. This difference ($\chi^2 = 34.795$; $p < 0.001$) suggests that German teachers see AI as having the potential to facilitate organizational tasks, such as lesson planning and scheduling, whereas few teachers in Poland use AI for this purpose.

Similar comparative analyses were conducted for perceived threats and challenges related to AI. Once again, different profiles of concern emerged among Polish and German teachers, reflecting their differing priorities and cultural concerns. For example, Polish RE teachers were far more likely than their German counterparts to express general ethical concerns, with 41.8% of RE teachers in Poland doing so compared to just 16.7% in Germany. This difference is statistically significant ($\chi^2 = 15.956$; $p < 0.001$) and suggests that Poland is experiencing a vibrant ethical debate on AI, with teachers voicing concerns about potential violations of Christian values, human dignity, and student ethics when interacting with intelligent machines. This caution may stem from the stronger presence of RE in Poland, which is rooted in Catholic ethics, theological discourse and pastoral care—all of which adopt a cautious approach to new technological solutions (Dicastery for the Doctrine of the Faith and Dicastery for Culture and Education 2025; Siepert 2025).

German RE teachers, on the other hand, were much more likely to highlight practical issues, such as a lack of AI training. In Germany, as many as 75.5% of respondents identified inadequate RE teacher training as a challenge, compared to 39.6% in Poland. This difference is statistically significant ($\chi^2 = 28.797$; $p < 0.001$). Consequently, German RE teachers emphasize the need for competence development and systemic support, highlighting the lack of training as the main barrier to implementing AI in RE. This may be because training in new technologies is widely available in Germany, making its absence particularly noticeable. In Poland, meanwhile, teachers tend to focus on theological and ethical issues.

It is worth noting that RE teachers in both countries have similar views on AI in some respects. For example, when asked about the potential impact of AI on traditional RE methods, such as limiting direct contact, communal prayer, and personal testimony, the respondents provided almost identical responses. Around 29% of RE teachers in both Poland and Germany perceive such a threat, and the differences are not statistically significant. Similar concerns about protecting students' data emerged, with relatively low percentages of RE teachers indicating this (14.9% in Poland and 15.7% in Germany; statistically insignificant difference: $\chi^2 = 1.875$; $p = 0.171$). These results demonstrate that certain issues, particularly those relating to technology or traditional teaching methods, are perceived similarly regardless of cultural context.

These differences can also be interpreted in light of the distinct educational frameworks that shape RE in the two countries (Chrostowski 2025b). In Poland, RE follows a catechetical model that focuses on transmitting doctrine, initiating people into the faith, and encouraging personal evangelization. Within this framework, teachers are more likely to evaluate AI in terms of its compatibility with theological content and its potential

to support evangelizing objectives. In Germany, however, RE operates within a dialogical and problem-oriented model that prioritizes critical reflection and the interpretation of religious experience (ibid., 8–9). This pedagogical approach may explain why German teachers are comparatively more open to exploring AI as a tool for dialogue, creativity, and reflective learning. Thus, situating these findings within the two models of RE clarifies that teachers' perceptions of AI are shaped not only by culture or technology but also by the pedagogical logic of their respective educational systems.

The ambivalent perceptions of AI discussed here raise questions about its potential impact on spiritual experiences and the perception of God, which will be analyzed in the next stage.

5.2 | The Impact of AI on Spiritual Experiences and the Image of God

One of the key themes addressed in the study was how RE teachers perceive the impact of AI on the spiritual realm and their perception of God. By “spiritual development,” we mean the process of forming a relationship with the sacred, which encompasses religious knowledge and experiences of transcendence (Elkins 2001; Krok 2009). These issues touch on axiological concerns, that is, whether AI could disrupt or support the human relationship with the sacred. The study indicates that RE teachers in both countries are considerably cautious about involving AI in the spiritual realm. However, the results also reveal significant differences in approach between Poland and Germany ($\chi^2 = 11.425$; $p = 0.022$). We asked teachers whether AI could effectively support the spiritual development of students. Responses were distributed across a spectrum ranging from “definitely yes” (justified by the potential for AI to deliver personalized religious content) to “definitely not” (based on the belief that AI cannot support spirituality). In Poland, opinions are more varied, with a higher proportion of RE teachers expressing cautious optimism and a higher proportion expressing extreme skepticism. Around one-third of Polish RE teachers (32.8%) believe that AI could support students' spiritual development if traditional teaching methods are maintained. However, a significant percentage firmly rejects this possibility: 17.9% of Polish respondents selected “definitely not,” thus expressing the view that spirituality is the domain of personal contact and grace alone and is inaccessible to AI. A further 11.2% chose the option “rather not.” Consequently, negative responses in Poland outweigh positive ones (approximately 29% vs. 33%, with around 38% undecided). In Germany, however, the prospect of using AI in the spiritual realm is met with even greater skepticism: 22.5% of German RE teachers believe that AI is incapable of supporting spiritual development (“rather no”), and a further 6.9% answered “definitely not.” Furthermore, a significant proportion (44.1%) have no opinion on the matter, which also indicates a lack of conviction about the positive impact of AI. The percentage of enthusiastic responses is lower in Germany than in Poland. Only 6.9% of respondents across the Oder River are convinced that AI can provide spiritual support thanks to personalized content. A further 19.6% believe that the potential of AI in this area is limited by the constraints of traditional teaching methods. This comparison shows that German RE teachers are more likely to “withhold judgement” on the spiritual applications of

AI, perhaps considering the topic too new or speculative to take a position. Polish RE teachers, on the other hand, are more likely to express clear opinions—positive or negative—about AI in the context of spirituality, probably reflecting a stronger emotional and ideological stance.

A critical analysis of these results prompts the question: What accounts for the greater skepticism among German RE teachers regarding the spiritual usefulness of AI? Perhaps this skepticism stems from their experience of working in a more secular environment. RE teachers in Germany may assume that, while technology can be helpful in teaching, it will not impact students' spiritual experiences, as these require testimony and community, which machines cannot provide. In contrast, Polish RE teachers, operating within the strongly institutional context of the Catholic Church, may allow for AI to play a certain role (e.g., providing personalized prayers and offering online spiritual counseling), but they also fear AI's “audacity” in matters of faith. This could explain the numerous claims that AI cannot comprehend the mystery of God and humanity and should therefore not “interfere” with the spiritual development of young people. Similar concerns have also emerged in the context of RE in Asia (Hana and Lie 2024) and Africa (Kurata et al. 2025). RE teachers in these regions recognize that while AI can facilitate personalized teaching, it cannot replace human interaction in spiritual and ethical development. They emphasize that AI can “simulate” spiritual content but cannot convey authentic faith testimony. Our results fit into this picture. While AI appears to be a potentially useful tool, it is incapable of replacing the spiritual dimension of RE. Indeed, according to many, it threatens the authenticity of religious experience. This perspective aligns with theological thinking, which holds that the truth about humans as *imago Dei*—beings created by God, relational and free (Gen 1:27; cf. Platow 2021)—is paramount.

Another issue examined was RE teachers' views on the impact of AI on society's perception of God. They were asked whether the development of AI technology could influence people's concept of God, for example, by undermining faith or relativising the image of the Creator, or if it could raise new metaphysical questions. Once again, Poles were found to be more convinced of the impact of AI (whether positive or negative) than Germans, most of whom believe that there will be no impact or are uncertain. The differences are significant ($\chi^2 = 10.620$; $p = 0.014$). In Poland, over a quarter of respondents (27.6% in total) believe that AI will change society's perception of God, with negative opinions prevailing. 19.4% of Polish RE teachers consider AI to distort the image of God, while 8.2% believe it could positively impact the experience of transcendence by offering new ways of knowing God. Over half (53.7%) believe that AI will not change the way God is perceived, suggesting a belief that the foundations of faith are constant and resistant to technological innovations. Meanwhile, 18.7% are undecided. Conversely, in Germany, the prevailing view is that AI will not affect the image of God (44.1%), or that no opinion is held (37.3%). Relatively few German RE teachers expect any change—only 18.6% believe there will be an impact (13.7% negative and 4.9% positive). Overall, Polish RE teachers are more likely than their German counterparts to anticipate a theological threat from AI, particularly as one in five fears it may distort people's understanding of God. In contrast, the majority of German RE teachers either do not see such

a threat or have no opinion. Additionally, Poles are less likely to remain undecided (18.7% vs. 37.3% in Germany who chose “difficult to say”), indicating a more polarized opinion in Poland. This can be interpreted as follows: In Polish religious discourse, the idea that AI can “compete” with God or undermine faith has gained traction, perhaps in the context of church teachings or debates in Catholic media outlets (Szepietowski 2023; Dudek 2023; Bukłowicz 2025). In Germany, nevertheless, RE teachers appear more skeptical about the significance of AI in matters of faith. The majority believe that the image of God is shaped by factors much deeper than technology. These results therefore highlight a paradox: RE teachers fear that AI may interfere with the spiritual sphere, making it superficial or confusing, yet they do not believe it can change anything in this area. This contradiction points to a deeper anxiety that new technologies are penetrating more and more areas of life, yet religion is still considered particularly ‘protected’ and in need of a human element. While some RE teachers recognize AI’s potential to personalize religious content and engage audiences, there is a widespread belief that it cannot replace religion’s spiritual foundation. This view is reflected in theological and pedagogical literature, which emphasizes that RE in the Christian tradition is based on relationships, testimony, and community—elements that AI cannot fully replicate (Chrostowski 2023).

In light of the above doubts concerning the spiritual dimension of AI, it is important to understand how technology is perceived in specific educational contexts, especially given the risk of oversimplifying religious content.

5.3 | Concerns About Simplifying Content Versus Personalizing the Learning Process

Before considering the personalization of RE processes and the risk of oversimplifying religious content, it is worth reflecting on whether AI could stimulate young people’s interest in religious topics. German RE teachers were much more optimistic in this regard: 68.6% believed that AI would definitely or probably increase student engagement, compared to 42.5% of Polish RE teachers. This difference was close to the threshold of statistical significance ($Z = -1.866$; $p = 0.062$). Notably, 41% of Polish RE teachers selected “difficult to say” (compared to 6.9% in Germany), indicating a higher level of uncertainty. This may be due to a lack of practical experience or deeper skepticism about the possibility of “technologically attracting” young people to religion. Conversely, German RE teachers, who often work with young people who are less connected to institutional religion, are more willing to use innovative forms of communication. This aligns with current trends in the development of German RE (cf. Section 2.2).

In this context, it is interesting to note that RE teachers recognize the negative impact of AI on teaching yet still hope for positive pedagogical innovations. While these two perspectives may seem contradictory, they actually reflect the complex expectations surrounding AI. These expectations can be summarized as a dilemma: Will AI lead to the impoverishment and automation of teaching, or enable a more personalized approach? Similar dual outlooks have been observed in previous studies: Teachers often recognize AI’s potential to personalize teaching,

yet also fear a decline in educational quality due to automation (Zawacki-Richter et al. 2019). The responses provided by the participants indicate that these two themes coexist in the minds of RE teachers. On the one hand, RE teachers clearly express concerns about the dehumanization and superficiality of the teaching process through AI. As many as 41.1% of all respondents see a problem in the fact that using AI may reduce the value of personal contact between teachers and students. This concern was particularly prevalent in Germany, where it was emphasized by 49.0% of teachers compared to 35.1% in Poland ($\chi^2 = 4.094$; $p = 0.043$). This is consistent with the previously discussed skepticism regarding the “spiritual” role of AI.

Similarly, slightly more than half of the RE teachers surveyed (50.8%) expressed concern that AI could misinterpret religious content. For example, it could generate messages that are inconsistent with doctrine or simplify or change the meaning of religious content. There were no statistically significant national differences in this regard (51.5% of teachers in Poland and 46.1% in Germany expressed this concern), suggesting that it is a fairly common fear among RE teachers, probably resulting from a concern about transmitting faith orthodoxy. RE teachers are aware that AI (e.g., chatbots) may provide answers that are inaccurate or theologically questionable, which students may then accept uncritically. This probably explains the strong belief that substantive control over AI-generated content is necessary. Concerns about the doctrinal correctness of the message are also raised in the literature. It has been suggested that AI models may unintentionally distort religious content (Dimara et al. 2024; Smith 2024; Chrostowski and Najda 2024), necessitating vigilant teacher supervision. Finally and most importantly, a significant proportion of respondents highlight the risk that AI can oversimplify religious messages, rendering them shallow and overly schematic. This worry was expressed by 32.1% of RE teachers in Poland and 13.7% in Germany. Statistically, this difference is significant ($\chi^2 = 9.683$; $p = 0.002$), meaning Polish RE teachers are much more concerned than their German counterparts about AI’s potential to oversimplify religious content. This can be explained by the fact that Polish RE places great emphasis on doctrine in terms of initiation and evangelization (Polish Bishops’ Conference 2001, 2018, 2019), so any simplification is met with resistance. Conversely, German RE teachers, who are perhaps more accustomed to a dialogical, problem-oriented and critical approach to religion, are more concerned about the loss of interpersonal relationships than about simplification itself (Schlag and Yadav 2023).

Although these results initially appear to contradict RE teachers’ positive expectations of AI (see Section 5.1), the two concepts are not mutually exclusive. Rather, they highlight a specific condition: RE teachers want personalized teaching, but not if it involves simplification or dehumanization. In other words, the ideal scenario for RE teachers is AI acting as an assistant, preparing tailored materials for students, facilitating knowledge repetition and engaging students through multimedia. Ultimately, however, it is the teacher who provides meaning to the content, corrects any oversimplifications, and fosters relationships, emotional reflection, and spiritual reflection. This conditional enthusiasm for AI is consistent with the findings of other studies in the field of pedagogy. For example, Zawacki-Richter et al. (2019) suggest that the best results are achieved by a complementary

model in which AI plays a supporting role alongside the teacher (Zawacki-Richter et al. 2019). Statistical data confirms this ambivalence. Very few RE teachers advocate the complete rejection of AI—only 3.7% in Poland and 6.9% in Germany strongly oppose the use of AI to increase interest in religion. Conversely, none of the key aspects of the potential risks have been ignored. For example, 51.5% of Polish RE teachers and 46.1% of German RE teachers are concerned that AI may misinterpret religious content, and 35.1% of Polish RE teachers and 49.0% of German RE teachers are worried that it may lead to a weakening of personal contact with students. Furthermore, 32.1% of Polish RE teachers and 13.7% of German RE teachers identified the danger of religious messages being simplified, while 32.8% of Polish RE teachers and 19.6% of German RE teachers expressed concern about the unethical use of AI. These figures clearly demonstrate that RE teachers recognize the potential of AI and identify areas requiring critical reflection and pedagogical consideration with great sensitivity.

Furthermore, 82% of respondents in Poland believe that AI ethics should be included in RE. In Germany, 61.8% of RE teachers supported this proposal, indicating a willingness to address potential technological threats. This suggests that RE teachers do not intend to passively observe changes related to AI, but rather wish to actively prepare students for their encounters with AI and facilitate discussions about related ethical dilemmas (e.g., distinguishing between truth and AI-generated fiction and respecting dignity in the world of machines). RE teachers' statements reinforce this. In Germany, 66.7% of respondents were in favor of AI training in RE, compared to 61.2% in Poland. This indicates a clear readiness within the teaching profession to address the issue as part of their professional development. This also proves that RE teachers want to learn how to use AI wisely, maximizing its positive aspects (e.g., personalization) while minimizing its negative aspects (e.g., simplification and errors). According to Cousseran et al.'s (2023) report, investing in developing teachers' competencies leads to greater openness and confidence in using AI. Additionally, teachers' perspectives on AI seem to be closely linked to their digital proficiency and years of experience, as illustrated below. International research involving teachers from six countries (including Japan, Brazil, and the USA) confirms that a teacher's readiness to use AI in education depends more on their level of trust and sense of technological competence (known as AI self-efficacy) than on their age or level of education (Viberg et al. 2023). This suggests that effective training should focus not only on technical knowledge but also on building a sense of agency and comfort when working with AI.

5.4 | Digital Skills and Demographic Factors Versus Openness to AI

Teachers' expectations and concerns regarding AI are influenced by various factors, such as their digital competence, experience with technology, and length of service. Statistical analysis revealed several significant correlations that help to explain why some RE teachers are eager to introduce AI into RE while others are more cautious. Overall, the results suggest that younger RE teachers with greater digital competence are generally more willing to recognize the opportunities and

benefits of AI. In contrast, experienced RE teachers and those potentially less familiar with technological innovations tend to be cautious and skeptical. Spearman's rank correlation analysis produced consistent results: the greater the seniority, the lower the openness to different forms of AI use and perceived usefulness. In the Polish part of the sample, these relationships were strong and highly significant. The correlation between seniority and views on this topic was $\rho = +0.386$ ($p < 0.001$), indicating a positive relationship; in other words, RE teachers with more seniority were less convinced that teaching about AI (specifically AI ethics) was necessary. Furthermore, RE teachers with longer service were less motivated to participate in AI training organized by the school ($\rho = +0.467$; $p < 0.001$) and expected less support in the form of access to AI tools ($\rho = +0.474$; $p < 0.001$). Notably, in Germany, the correlations between seniority and openness to training were statistically insignificant, potentially due to marginal differences in opinions or limited sample size. Regardless of seniority, the majority there want training, which may be the result of a widespread culture of continuing education. Similarly, research by Kurata et al. (2025) showed that openness to AI correlates with a sense of systemic support and access to tools rather than seniority. Teachers who participated in practical AI training, regardless of age, expressed a greater willingness to experiment with new teaching methods.

These differences become apparent in the actual use of AI tools and the perceived benefits, as seen particularly in the Polish research sample. RE Teachers with less experience were found to be more likely to experiment with AI tools themselves. They were also more inclined to cite specific advantages from their own experience, such as assistance in creating tests and quizzes, or the rapid preparation of teaching materials. Perhaps younger RE teachers recognize the practical usefulness of tools such as ChatGPT for creating quizzes or DALL-E for generating illustrations. RE Teachers with extensive experience, on the other hand, were less prone to highlight such advantages, probably due to their limited use of AI tools and lack of practical experience with these facilitations. A significant negative correlation was found between the age of Polish RE teachers and their use of AI ($\rho = -0.255$; $p < 0.001$). This suggests that older teachers are generally reluctant to use AI in RE. Similarly, length of service correlated negatively with the declared use of AI. Furthermore, positive correlations revealed that the more senior the RE teacher, the less convinced they were that AI could increase students' interest in religious topics or support their spiritual development. These findings suggest that the younger generation of RE teachers in Poland is more open to innovative teaching methods and more inclined to believe that technology can enhance RE. The older generation, probably more attached to proven, traditional methods, approaches this with greater caution and sometimes even distrust. This generational difference can be understood in the context of the "digital natives" and "digital immigrants" theory (Prensky 2001): Younger people who have grown up in the Internet Era are more comfortable with AI and view it as a useful tool, whereas older colleagues must learn to use it and often feel uncertain about it.

These correlations can also be observed when analyzing the age of RE teachers and the type of school at which they work. In the Polish sample, for example, 71.4% of RE teachers with up to 5 years' experience believe that AI can change the way

religion is perceived, compared to just 36% of those with over 20 years' experience. In Germany, however, it was the youngest and oldest RE teachers who were more likely to recognize the potential for change, whereas those in the "middle age group" were more skeptical. These findings are confirmed by age data. In Poland, RE teachers open to AI were, on average, 45 years old, while those opposed to it were, on average, 52 years old (compared to an average of 48 years for the entire sample). In Germany, the average age was 50.5 years. The age of RE teachers is also related to the type of school in which they work. In Poland, 78.4% of RE teachers surveyed worked in primary schools, whereas in Germany, this figure was only 42.2% ($\chi^2 = 30.928$; $p < 0.001$). This distribution correlates with increased openness to AI, as primary school RE teachers, who are often younger, showed greater enthusiasm for using new educational tools. Being a primary school RE teacher was moderately correlated with the frequency of AI use ($\rho = -0.105$, $p = 0.227$). Primary school RE teachers used AI more often for visual and creative support, such as games, illustrations, and quizzes. In contrast, secondary school RE teachers mainly cited organizational and administrative functions, such as lesson planning and test creation. Secondary school teachers also expressed greater concerns about losing control over the teaching process. For instance, 63.7% of respondents in Germany indicated that AI could independently plan lessons. RE teachers feel more responsible for protecting younger students from the trivialization of content; when teaching older students, however, they are more concerned with the quality of reflection and the level of discourse. Consequently, it is not possible to categorize either group as "pro" or "anti"; different aspects of AI reveal different perspectives and priorities among RE teachers.

In our study, digital competence was measured indirectly as a key dimension through self-assessment of digital skills, declarations of familiarity with AI tools and participation in training. The results show that higher digital competence is closely linked to openness to using AI, particularly among the Polish sample. Among RE teachers who had already used AI tools, self-assessment of AI knowledge was significantly higher, with a correlation of $\rho = 0.448$ ($p < 0.001$) between frequency of use and self-assessment. Knowledge of specific tools, such as ChatGPT, Claude, and Gamma, also showed a significant correlation with the ability to use them in practice. In Poland, these correlations ranged from 0.25 to 0.42 ($p < 0.01$). In Germany, however, these relationships were statistically insignificant. Furthermore, the level of declared knowledge varied between countries. In Poland, 12.7% of RE teachers rated their knowledge as advanced, compared to 13.7% in Germany. Additionally, 52% of German respondents declared a basic level of knowledge, compared to 39.6% of Polish respondents. These differences may explain the higher level of skepticism and lesser practical use of AI in the German RE context. Therefore, it can be concluded that those who are more familiar with modern AI applications are better at integrating them into classroom practice. This is an important insight. Digital competences are not abstract, and specific training in tools translates into readiness to use them. A snowball effect can be observed: An RE teacher who familiarizes themselves with ChatGPT or Canva of their own accord will discover how it can assist them in their work and become enthusiastic about it. This mechanism is confirmed by many

authors who state that positive experience with technology fosters a positive attitude (Geddard et al. 2024; Gillespie et al. 2025; Naiseh et al. 2025).

Similarly, Lin et al. (2022) emphasize that teachers need technical and pedagogical support when designing lessons using AI. They identify five key components of effective AI implementation: interactive design, pedagogical knowledge, a focus on the common good, and an understanding of the barriers to and opportunities for participation in digital education. This underlines the importance of integrated training programs for RE teachers, covering the ethical, theological, and methodological integration of tools with RE, as well as their application.

5.5 | Limitations

While the results offer valuable insights into the perceptions of RE teachers regarding AI in Germany and Poland, several significant limitations require the findings to be interpreted with caution. Firstly, the sample was purposive and based on available professional networks, and participation was voluntary. The group of 236 respondents (134 from Poland and 102 from Germany) is not representative of the entire RE teachers' population. It is possible that selection bias occurred, whereby people with an interest in, or access to, new technologies were more willing to complete the survey. Secondly, a proprietary questionnaire was used which had not previously been validated. Although it was developed based on a review of the literature and expert knowledge, it is possible that some questions or scales do not perfectly reflect complex constructs (e.g., the impact of AI on spirituality or digital competence levels). The responses are based on subjective statements and may be interpreted differently depending on the cultural context. Thirdly, as this was a cross-sectional study conducted in early 2025, it only reflects attitudes at a single point in time. Given the rapidly evolving nature of AI technologies, teachers' perceptions may change considerably as new tools, models, and educational frameworks emerge, which should be taken into account when interpreting the results. It does not cover the dynamics of change or the possible impact of future events, such as new AI tools or ministerial initiatives, on these views. In addition, the absence of a qualitative component, such as in-depth interviews or focus groups, limits the interpretive depth of the study. Qualitative insights could have provided a more detailed understanding of teachers' reasoning, values, and contextual interpretations related to AI. Furthermore, important variables such as teachers' religious affiliation in Germany (Catholic vs. Protestant), the type of school, and regional differences in approaches to RE were not analyzed in detail. These factors may influence the responses. It should also be noted that the study did not distinguish between secular AI systems and those trained on religious corpora, such as Magisterium AI (Brasch 2025). In Catholic contexts—particularly in Poland—this distinction may influence how teachers perceive the legitimacy and reliability of AI-generated content. Finally, differences in the sample structure (e.g., different participation rates of primary and secondary school teachers) may partly explain the differences between countries, so interpretations based solely on cultural factors should be avoided.

6 | Conclusions and Recommendations

Overall, the research portrays Catholic RE teachers in Germany and Poland as cautious realists. Polish teachers are more concerned about the simplification of content and the negative impact of AI on spirituality, and are therefore less open to AI. In Poland, this correlates significantly with lower digital competence and more professional experience. In Germany, where a pragmatic and skeptical attitude toward the spiritual applications of technology prevails, the main barrier is a lack of training. Nevertheless, both groups recognize AI's potential, particularly in terms of task automation and personalized teaching. However, they are clearly focused on safeguarding humanistic values, relationships and high-quality educational content. Consistent with the Christian ethos of RE, they view AI as an ally on their own terms, as Kurata et al. (2025) suggest. This perspective is reflected in their support for integrating AI topics into the RE curriculum from ethical and social viewpoints. Eighty-two per cent of Polish respondents and a significant majority of German RE teachers (61.8%) recognize the importance of developing future competencies among young people by addressing issues such as truth, responsibility and the limitations of AI. In both Poland and Germany, the vast majority of RE teachers (61.2% and 66.7%, respectively) declare their willingness to participate in AI training. This indirectly indicates their readiness to lead responsible educational transformation, that is, AI leadership (Chrostowski 2025a). Furthermore, Lin et al. (2022) emphasize that effective teaching with AI requires proficiency in the tools and pedagogical skills to design lessons that consider the ethical and spiritual dimensions of technology.

In light of the empirical analyses conducted, the following recommendations for the development of RE in the age of AI seem reasonable:

- Systemic training programs in the field of AI should be launched for RE teachers. As well as covering technical aspects, such as the use of content generators, these programs should facilitate ethical and theological reflection on the role of AI in RE. Particular emphasis should be placed on supporting older teachers, for example by offering them dedicated training programs to help them overcome any digital skills gaps and boost their confidence in their digital abilities (Lindner 2023; Hana and Lie 2024).
- Develop and implement teaching modules on the spiritual and ethical dimensions of AI. These should address concerns among RE teachers regarding the distinction between truth and falsehood in algorithmically generated content, human-machine interactions, and responsibility within the digital environment (Chrostowski and Heger 2025). In Poland, where there is a clear requirement, this area should be prioritized in RE theory and practice. In both countries, it is recommended that existing interdisciplinary initiatives (e.g., e-learning or digital ethics) consider the religious dimension.
- Even if it is not a religious issue per se, it is necessary to increase investment in infrastructure and teaching resources. This should include providing modern computer equipment and software, as well as access to AI tools (Sayari 2025) and open databases of materials and platforms for the exchange

of good practices, such as Relilab (2025). Practical guides for RE teachers on integrating AI into RE should also be created (Hadziq et al. 2024).

- Supporting intergenerational cooperation among RE teachers through mentoring, coaching, demonstration lessons and joint lesson planning incorporating AI elements is essential. Diocesan and educational institution teaching departments should launch local and interregional programs (including online networks) to enable experienced RE teachers to share their knowledge with younger colleagues, and vice versa.
- Both the autonomy of RE teachers and the functional nature of AI must be maintained. Rather than replacing RE teachers, AI technologies should be viewed as supportive tools, with the primary purpose of meaningfully improving RE in both countries (Chrostowski 2023, 2024b).

Due to the dynamic nature of AI, further quantitative, qualitative, and longitudinal research is required to improve our understanding of the motivations and barriers involved, as well as tracking changes in teachers' perceptions over time. Such in-depth analysis is essential for effectively and responsibly implementing technology in RE that can adapt to changing school and cultural realities. It would also be valuable to extend this line of inquiry beyond the present focus on Catholic RE in Germany and Poland, including other Catholic contexts such as Italy and Malta, as well as Protestant teachers in Germany and the perceptions of students themselves, whose views on AI in RE remain largely unexplored. Furthermore, future research should not only cover the European context but also other models of RE. For example, the relationship between technology and religion may manifest differently in inter-religious and ecumenical models.

Acknowledgments

All authors contributed to the conception, design, and analysis of the study. They provided feedback on earlier drafts and approved the final version of the manuscript. The authors gratefully acknowledge colleagues who provided constructive comments during the review process. DeepL and ChatGPT (OpenAI, GPT-5) were used solely for language editing and stylistic refinement under full author supervision. Open Access funding enabled and organized by Projekt DEAL.

Ethics Statement

The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of The John Paul II Catholic University of Lublin (protocol code 2/2024/KEBN WT KULand date of approval: 27.12.2024).

Consent

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

- Adamski, M. 2021. "Katecheza w Świecie Cyfrowym. Inkulturacja i Język w Kulturze Cyfrowej." *Studia Katechetyczne* 17: 219–246. <https://doi.org/10.21697/sk.2021.17.14>.
- Bergdahl, J., R. Latikka, M. Celuch, et al. 2023. "Self-Determination and Attitudes Toward Artificial Intelligence: Cross-National and Longitudinal Perspectives." *Telematics and Informatics* 82: 102013. <https://doi.org/10.1016/j.tele.2023.102013>.
- Beutner, M. 2025. "The Use of Generative AI in German School Education." In *Proceedings of EdMedia + Innovate Learning 2025*, edited by T. Bastiaens, 123–131. Association for the Advancement of Computing in Education.
- Bilicka, B., and M. Gurzyński. 2019. *iPad na Szkolnych Lekcjach Religii*. Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika.
- Bozkurt, V., and D. Gursoy. 2025. "The Artificial Intelligence Paradox: Opportunity or Threat for Humanity?" *International Journal of Human Computer Interaction* 41, no. 1: 174–187. <https://doi.org/10.1080/10447318.2023.2297114>.
- Brasch, B. 2025. "A Catholic AI App Promises Answers for the Faithful. Can It Succeed?" Accessed September 5. <https://www.washingtonpost.com/religion/2025/07/31/catholic-ai-magisterium-pope-leo/>.
- Bukłowicz, S. 2025. "Bożek z Krzemu. Sztuczna Inteligencja Jako Nowa Religia?" Accessed May 28, 2025. <https://pch24.pl/bozek-z-krzemu-sztuczna-inteligencja-jako-nowa-religia/>.
- Bukowski, M., and I. Klonowska. 2024. "Boskie AI. Sztuczna Inteligencja i Edukacja. Poszukiwanie Nowych Horyzontów w Kontekście Edukacyjnym, Teologicznym i Technologicznym – Szanse i Zagrożenia." *Kościół i Prawo* 13, no. 26, 2: 151–168. <https://doi.org/10.18290/kip2024.24>.
- Carolus, A., M. Koch, S. Straka, M. E. Latoschik, and C. Wienrich. 2023. "MAILS—Meta AI Literacy Scale: Development and Testing of an AI Literacy Questionnaire Based on Well-Founded Competency Models and Psychological Change-and Meta-Competencies." <https://doi.org/10.48550/arXiv.2302.09319>.
- Casal-Otero, L., A. Catala, C. Fernández-Morante, M. Taboada, B. Cebreiro, and S. Barro. 2023. "AI Literacy in K-12: A Systematic Literature Review." *International Journal of STEM Education* 10, no. 1: 29.
- Centre for Public Opinion Research. 2024. *Sztuczna inteligencja w opiniach Polaków*. Accessed May 22, 2025. https://www.cbos.pl/SPISKOM.POL/2024/K_093_24.PDF.
- Chrostowski, M. 2021. *Schulpastoral für Alle! Religionspädagogische und Pastorale Impulse Deutscher Schulpastoral für ein Schulpastorales Modell in Polen (Am Beispiel der Diözese Łomża)*. LIT.
- Chrostowski, M. 2023. "Anwendung Von Künstlicher Intelligenz im Religionsunterricht: Möglichkeiten, Grenzen und Brennpunkte." *Religionspädagogische Beiträge* 46, no. 1: 79–95. <https://doi.org/10.20377/rpb-267>.
- Chrostowski, M. 2024a. "Anthropologische, Ethische und Theologische Problemzonen der Künstlichen Intelligenz als Lerngegenstand im Religionsunterricht (XIV–5.1.2.7)." In *Handbuch der Religionen*, edited by M. Klöcker, U. Tworuschka, and M. Rötting, 1–20. Westarp. <https://doi.org/10.5771/9783866175150-XIV-5.1.2.7>.
- Chrostowski, M. 2024b. "Zum Einsatz Sozialer Roboter im Religionsunterricht: Theoretische Annäherung an Interaktive Lehr-Lernformen der Zukunft." *Theo-Web: Zeitschrift für Religionspädagogik* 23, no. 2: 290–304. <https://doi.org/10.23770/tw0363>.
- Chrostowski, M. 2024c. "Förderung Kritischen Denkens Durch den Einsatz von ChatGPT im Religionsunterricht: Sinn Oder Unsinn?" *Österreichisches Religionspädagogisches Forum* 32, no. 2: 166–181. <https://doi.org/10.25364/10.32:2024.2.10>.
- Chrostowski, M. 2025a. "Auf dem Weg zur, AI literacy'im Religionsunterricht: Versuch einer religionsdidaktischen Konzeptualisierung." *Zeitschrift für Pädagogik und Theologie* (in print).
- Chrostowski, M. 2025b. "Teaching Religion in Postmodern Society: Some Insights From the German 'Carousel of Concepts' for the Renewal of Catholic Religious Education in Poland." *British Journal of Religious Education* 47, no. 3: 295–313. <https://doi.org/10.1080/01416200.2024.2413098>.
- Chrostowski, M., and E. Fock. 2025. "Zur Notwendigkeit eines differenzierten Umgangs mit Trans- und Posthumanismus im Religionsunterricht: Religionspädagogische Überlegungen und didaktische Leitlinien." *Religionspädagogische Beiträge* (in print).
- Chrostowski, M., and J. Heger. 2025. "Nun sag, wie Hast Du's mit der künstlichen Intelligenz? Religionsdidaktische und -pädagogische Perspektiven." In *Herausforderungen, Chancen, Risiken Künstlicher Intelligenz*, edited by C. Kreisbeck, C. Pfeuffer, and T. Holischka. transcript Verlag (in print).
- Chrostowski, M., and A. J. Najda. 2024. "ChatGPT as a Modern Tool for Bible Teaching in Confessional Religious Education: A German View." *Journal of Religious Education* 73, no. 1: 75–94. <https://doi.org/10.1007/s40839-024-00244-1>.
- Chyłka, B. 2024. "Narzędzia AI na Katechezie – Szansa czy Zagrożenie?" Accessed May 27, 2025. <https://www.czasopismokatecheza.pl/artikul/narzedzia-ai-na-katechezie-szansa-czy-zagrozenie>.
- Cousseran, L., A. Lauber, S. Herrmann, and N. Brüggem. 2023. *Kompass: Künstliche Intelligenz und Kompetenz 2023. Einstellungen, Handeln und Kompetenzentwicklung im Kontext von KI*. JFF – Institut für Medienpädagogik in Forschung und Praxis.
- Cukras-Stelągowska, J., J. Horowski, A. Kławiś-Zduńczyk, I. Murawska, and M. Maciejewska. 2025. "Spirituality of Polish Secondary School Students who Have Opted out of School Religious Education." *International Studies in Catholic Education*: 1–17. <https://doi.org/10.1080/19422539.2025.2509497>.
- Czekalski, R. 2023. "Przyszłość Kościoła – Wyzwanie i Problem Katechetyczny." *Studia Katechetyczne* 19: 319–331. <https://doi.org/10.21697/sk.2023.19.17>.
- Dicastery for the Doctrine of the Faith & Dicastery for Culture and Education. 2025. "Antiqua et Nova: Note on the Relationship Between Artificial Intelligence and Human Intelligence." Accessed September 5. https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_dff_doc_20250128_antiqua-et-nova_en.html.
- Dimara, V., D. Chatzivasileiou, A. Psomiadi, T. W. Efthymiou-Egletou, L. Kassar, and H. Gancas. 2024. "Artificial Intelligence and Theology: Can Different Doctrines Have Different Outcomes?" *Journal of Politics and Ethics in New Technologies and AI* 3, no. 1: e37714. <https://doi.org/10.12681/jpentai.37714>.
- Domsgen, M., and U. Witten. 2022. *Religionsunterricht im Plausibilisierungstress: Interdisziplinäre Perspektiven auf Aktuelle Entwicklungen und Herausforderungen*. Transcript. <https://doi.org/10.1515/9783839457801-024>.
- Dudek, D. 2023. "Homilię Wygłosi Chatbot – Czy Sztuczna Inteligencja Będzie nas Ewangelizować?" Accessed May 30, 2025. <https://pl.aletia.org/2023/05/22/homilie-wyglosi-chatbot-czy-sztuczna-inteligencja-bedzie-nas-ewangelizowac>.
- El Okoronkwo, M., and U. A. Dike. 2025. "Ethics of Artificial Intelligence and the Judeo-Christian Practices: Toward a Theology of Thinking Machine." *Futurity Philosophy* 4, no. 1: 71–85.
- Elkins, D. N. 2001. "Beyond Religion: Toward a Humanistic Spirituality." In *The Handbook of Humanistic Psychology: Leading Edges in Theory*,

- Research, and Practice, edited by K. J. Schneider, J. T. Bugental, and J. F. Pierson, 201–212. SAGE Publications. <https://doi.org/10.4135/9781412976268.n16>.
- Fabricius, S. 2021. “Transhumanismus.” Accessed May 28, 2025. https://cms.ibep-prod.com/app/uploads/sites/18/2023/08/Transhumanismus__2021-02-03_12_26.pdf.
- Fabricius, S. 2025. “KI und soziale Robotik: Methodologische und wissenschaftliche Orientierungen für die Erforschung im Religionsunterricht.” *Österreichisches Religionspädagogisches Forum* 33, no. 2: 195–213. <https://doi.org/10.25364/10.33:2025.2.11>.
- Fock, E. 2024. “Der Körper im Religionsunterricht. Religionspädagogische Vergewisserungen in Systematisierender Absicht.” *Journal für Allgemeine Didaktik* 12: 63–83. <https://doi.org/10.35468/jfad-12-2024-03>.
- Gärtner, C. 2022. “Digitales ‘Ich’? Trans- Und Posthumanismus als Theologische und religionspädagogische Herausforderung.” In *Gratwanderung künstliche Intelligenz. Interdisziplinäre Perspektiven auf das Verhältnis von Mensch und KI*, edited by B. Konz, K.-H. Ostmeier, and M. Scholz, 111–124. Kohlhammer.
- Geddam, S. M., N. Nethravathi, and A. A. Hussian. 2024. “Understanding AI Adoption: The Mediating Role of Attitude in User Acceptance.” *Journal of Informatics Education and Research* 4, no. 2: 1–9. <https://doi.org/10.52783/jier.v4i2.975>.
- Gillespie, N., S. Lockey, and T. Ward. 2025. “Trust, Attitudes and Use of Artificial Intelligence.” Accessed May 29, 2025. <https://assets.kpmg.com/content/dam/kpmg/au/pdf/2025/trust-in-ai-global-insights-2025-full-report.pdf>.
- Grümme, B. 2022. “KI, ein Ernstfall der Religionspädagogik.” *Religion Unterrichten* 2: 38–43.
- Hadziq, M. F., D. A. Havifah, and L. Badriyah. 2024. “Transformasi Pendidikan Agama di era Digital: Peran Artificial Intelligence (AI) Dalam Memperkuat Nilai-Nilai Islami.” *Mauriduna: Journal of Islamic Studies* 5, no. 2: 801–827. <https://doi.org/10.37274/mauriduna.v5i2.1293>.
- Hana, A. W., and N. H. Lie. 2024. “Artificial Intelligence Sebagai Mitra Pengajaran: Pengaruh Teknologi Terhadap Pendidikan Agama Kristen.” *CONSCIENTIA: Jurnal Teologi Kristen* 3, no. 1: 33–56.
- Harbecke, H. 2022. “Ethisch-Anthropologische Herausforderungen Selbstfahrender Autos – Mit Gestaltungsaufgabe(N).” *Religion Unterrichten* 2: 44–70.
- Hartong, S. 2016. “The Standardization of German Education Policy and the Particular Role of New (Digital) Infrastructures of Performance Monitoring.” Accessed May 28, 2025. <https://www.researchgate.net/publication/308173039>.
- Hassel, J. 2022. “Human Enhancement, big Data und KI – Ethische Herausforderungen im RU. Bausteine für die Jahrgangsstufen 10–12.” *Religion Unterrichten* 2: 71–100.
- Heger, J. 2023. “Heilige Lade Oder Golem? Hochschul- Und (Religions-) didaktische Reflexionen zum Umgang mit ChatGPT.” *RU Heute* 1+2: 29–34.
- Heger, J. 2025. “(Religiöse) Bildung mit KI in der Zukunft?” *Loccumer Pelikan* 1: 22–27. <https://doi.org/10.5771/9783866175167-XIV-5.1.1.1>.
- Horowski, J. 2022. “Religion Lesson in Schools in Poland-The Subject of Dispute and the Unused Potential.” *British Journal of Religious Education* 44, no. 3: 238–245. <https://doi.org/10.1080/01416200.2021.2024341>.
- Janiga, W., and A. Mezglewski. 2019. “Nauczanie Religii w szkołach Publicznych.” *Roczniki Nauk Prawnych* 11, no. 1: 131–160.
- Katecheza. 2023. Nr 21, Maj. Accessed May 28, 2025. <https://www.czasopismokatecheza.pl/czasopismo/2023/21#>.
- Khoa, T., and T. Nguyen. 2021. “Preliminary Research on the Social Attitudes Toward AI’s Involvement in Christian Education in Vietnam: Promoting AI Technology for Religious Education.” *Religions* 12, no. 3: 208. <https://doi.org/10.3390/rel12030208>.
- Kluge, S. 2023. “Künstliche Intelligenz als Thema im Religionsunterricht.” *Jahrbuch der Religionspädagogik* 39: 165–175. <https://doi.org/10.13109/9783666703362.165>.
- Kozak, J., and S. Fel. 2024. “The Relationship Between Religiosity Level and Emotional Responses to Artificial Intelligence in University Students.” *Religions* 15, no. 3: 331. <https://doi.org/10.3390/rel15030331>.
- Krok, D. 2009. “Religijność a duchowość – różnice i podobieństwa z Perspektywy Psychologii Religii.” *Polskie Forum Psychologiczne* 14, no. 1: 126–141.
- Kropač, U., and M. Schambeck, eds. 2022. *Konfessionslosigkeit als Normalfall: Religions- Und Ethikunterricht in säkularen Kontexten*. Freiburg i. Br.
- Kuciński, M. 2021. “Sztuczna inteligencja a godność człowieka.” *Fides, Ratio et Patria. Studia Toruńskie* 14: 210–224.
- Kunz, S. 2024. KI-gestützte Lernwelten: Potenziale und Grenzen am Beispiel des Berufsschul-Religionsunterrichts (BRU). München.
- Kurata, L., M. A. Ayanwale, R. R. Molefi, and T. Sanni. 2025. “Teaching Religious Studies With Artificial Intelligence: A Qualitative Analysis of Lesotho Secondary Schools Teachers’ Perceptions.” *International Journal of Educational Research Open* 8: 100417. <https://doi.org/10.1016/j.ijedro.2024.100417>.
- Lin, X. F., L. Chen, K. K. Chan, et al. 2022. “Teachers’ Perceptions of Teaching Sustainable Artificial Intelligence: A Design Frame Perspective.” *Sustainability* 14, no. 13: 7811. <https://doi.org/10.3390/su14137811>.
- Lindner, A., R. Romeike, E. Jasute, and S. Pozdniakov. 2019. “Teachers’ Perspectives on Artificial Intelligence.” Paper presented at the 12th International Conference on Informatics in Schools: “Situation, Evaluation and Perspectives” (ISSEP), November 2019.
- Lindner, K. 2023. “Professionalität von Religionslehrer:Innen: Anmerkungen aus Religionsdidaktischer Perspektive.” In *Religionslehrer:In im 21. Jahrhundert*, edited by M. Hailer, A. Kubik, M. Otte, M. Schambeck, B. Schröder, and H. Schwier, 61–68. Evangelische Verlagsanstalt.
- Lipski, J. A. 2023. “Can Artificial Intelligence Be Equipped With Virtues?” *Więź* 692, no. 2: 24–36.
- Machinek, M. 2022. “Transhumanizm Jako Wyzwanie dla Teologii. Kilka pytań.” *Teologia i Moralność* 17, no. 1: 73–88. <https://doi.org/10.14746/TIM.2022.31.1.6>.
- Mąkosza, P. 2014. “Nauczanie Religii Wobec Cyfryzacji Polskiej szkoły.” *Roczniki Teologiczne* 61, no. 11: 25–38.
- Mąkosza, P. 2015. “Confessional and Catechetical Nature of Religious Education in Poland.” *Person and the Challenges* 5, no. 2: 53–66. <https://doi.org/10.15633/pch.1521>.
- Mąkosza, P. 2024. “Interaktywne Programy Komputerowe narzędziem Pozalekcyjnej Edukacji Religijnej.” *Collectanea Theologica* 94, no. 1: 225–232. <https://doi.org/10.21697/ct.2024.94.1.08>.
- Mąkosza, P., and T. Adamczyk. 2024. “Przemiany religijności w społeczeństwie Polskim.” *Verbum Vitae* 42, no. 1: 1–15. <https://doi.org/10.31743/vv.17095>.
- Mąkosza, P., H. Słotwińska, J. Mariański, M. Buk-Cegiełka, and R. Rybarski. 2024. “Wpływ Nauczania Religii na religijną wiedzę i wiarę uczniów. Analiza Opinii młodzieży.” *Collectanea Theologica* 94, no. 2: 113–138. <https://doi.org/10.21697/ct.2024.94.2.05>.
- Mayrhofer, F. 2024. “Von Jesus-Bots und Luther-Avataren: KI in der religiösen Bildungspraxis.” *évangél: Magazin für Missionarische Pastoral* 2: 1–4.

- Mazur, R. 2021. "Kultura Cyfrowa Jako Kontekst współczesnej Katechezy." *Colloquia Theologica Ottoniana* 37: 149–167. <https://doi.org/10.18276/cto.2021.37-09>.
- Meinen, S. 2023. "KI im RU." Accessed May 22, 2025. <https://digitalrun.de/de/2023/03/ki-im-ru>.
- Mujiono, P., and D. A. Wibowo. 2024. "Utilization of AI Media in Christian Religious Education: Effectiveness, Challenges, and Impact." *Journal Didaskalia* 7, no. 2: 102–108.
- Naiseh, M., A. Babiker, S. Al-Shakhsi, et al. 2025. "Attitudes Towards AI: The Interplay of Self-Efficacy, Well-Being, and Competency." *Journal of Technology in Behavioral Science* 10: 705–718. <https://doi.org/10.1007/s41347-025-00486-2>.
- Ng, D., K. Tsz, K. C. E. Chan, and K. L. Chung. 2025. "Opportunities, Challenges and School Strategies for Integrating Generative AI in Education." *Computers and Education: Artificial Intelligence* 8: 100373. <https://doi.org/10.1016/j.caeai.2025.100373>.
- Nord, I. 2024. "Die Bedeutung der Digitalisierung für die religiöse Bildung. Die Digitale Transformation im Fokus der Religionspädagogik und -Didaktik." In *Theologie und Technik. Eine interdisziplinäre Zwischenbilanz*, edited by C. Helmus and A. M. Riedl, 125–148. Herder.
- Nord, I., and J. Palkowitsch-Kühl. 2018. "Nicht die app Steht im Mittelpunkt, Sondern der Kompetenzerwerb." *RPI-Impulse* 18, no. 3: 5–9.
- Otten, G., and J. Paeßens. 2022. "Editorial: Künstliche Intelligenz (KI) und Human Enhancement." *Religion Unterrichten* 2: 6–7. <https://doi.org/10.13109/reun.2023.4.2.7>.
- Palkowitsch-Kühl, J., and E.-M. Leven. 2020. "Wie Begegnen wir künstlicher Intelligenz?" *RPI-Impulse* 2: 18–19.
- Papakostas, C. 2025. "Artificial Intelligence in Religious Education: Ethical, Pedagogical, and Theological Perspectives." *Religion* 16, no. 5: 563. <https://doi.org/10.3390/rel16050563>.
- Pei, X., G. Jianing, and T.-J. Wu. 2025. "How Ambivalence Toward Digital-AI Transformation Affects Taking-Charge Behavior: A Threat-Rigidity Theoretical Perspective." *Behavioral Science* 15, no. 3: 1–19. <https://doi.org/10.3390/bs15030261>.
- Pirker, V. 2019. "Das Geheimnis im Digitalen. Anthropologie und Ekklesiologie im Zeitalter von big Data und Künstlicher Intelligenz." *Stimmen der Zeit* 144, no. 2: 133–141.
- Pirker, V. 2023. "Subjekt Mensch – Mehr als 'das Andere der künstlichen Intelligenz'? Anthropologie als Grundfrage des Religionsunterrichts (Sekundarstufe I)." In *Fachdidaktik Religion – diversitätsorientiert und Digital*, edited by I. Nord and J. Petzke, 229–238. Cornelsen Pädagogik.
- Platow, B. 2021. "Selbstwahrnehmung und ich-Konstruktion im Angesicht von Künstlicher Intelligenz." In *Digitalisierung aus Theologischer und Ethischer Perspektive*, edited by G. Ulshöfer, P. G. Kirchschräger, and M. Huppenbauer, 105–124. Nomos. <https://doi.org/10.5771/9783748924012-105>.
- Platow, B. 2022. "Digitalisierung/big Data/Künstliche Intelligenz." In *Ethische Kernthemen. Lebensweltlich – theologisch-ethisch – didaktisch*, edited by H. Simojoki, M. Rothgangel, and U. H. J. Körnter, 85–95. Vandenhoeck & Ruprecht. <https://doi.org/10.13109/9783666624490.85>.
- Polish Bishops' Conference. 2001. *Dyrektorium Katechetyczne Kościoła Katolickiego w Polsce*. Wydawnictwo WAM.
- Polish Bishops' Conference. 2018. *Podstawa Programowa Katechezy Kościoła Katolickiego w Polsce*. Edycja Świętego Pawła.
- Polish Bishops' Conference. 2019. *Program Nauczania Religii Rzymskokatolickiej w Przedszkolach i szkołach*. Edycja Świętego Pawła.
- Polish Bishops' Conference. 2024. *Komunikat wobec zmian wprowadzanych przez Ministerstwo Edukacji Narodowej w organizacji lekcji religii w szkołach publicznych*. Accessed May 27, 2025. <https://episkopat.pl/doc/222621.Komunikat-Prezydium-KEP-wobec-zmian-wprowadzanych-przez-MEN-w>.
- Prensky, M. 2001. "Digital Natives, Digital Immigrants Part 2: Do They Really Think Differently?" *On the Horizon* 9, no. 6: 1–6. <https://doi.org/10.1108/10748120110424843>.
- Przygoda, W. 2024. "Sztuczna inteligencja a duszpasterstwo. Obietnice-zagrozenia-wyzwania." *Spoleczeństwo* 34, no. 1: 51–65. <https://doi.org/10.58324/s.378>.
- Relilab. 2025. Begleitende Forschung. Accessed May 29, 2025. <https://relilab.org/forschung/>.
- Roszak, P. 2024. "Nowy człowiek: dzięki łasce czy Technologii? Tomasz z Akwinu Wobec Obietnic Transhumanizmu." *Wrocławski Przegląd Teologiczny* 32, no. 2: 73–87. <https://doi.org/10.52097/wpt.8481>.
- RPI-Virtuell. 2025. "Künstliche Intelligenz." Accessed May 29, 2025. <https://material.rpi-virtuell.de/schlagwort/kuenstliche-intelligenz/>.
- Sayari, K. T. 2025. "Infrastructure and Investment Needs for AI Implementation in Education." In *Teachers' Roles and Perspectives on AI Integration in Schools*, edited by E. Çela, N. Vajjhala, and M. Fonkam, 141–162. IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-1017-6.ch005>.
- Schlag, T., and K. Yadav. 2023. "Bildungsbeziehungen in der Ankunftszeit des Metaversums – Eine religionspädagogische Sensibilisierung." *Zeitschrift für Pädagogik und Theologie* 75, no. 2: 163–181. <https://doi.org/10.1515/zpt-2023-2005>.
- Secretariat of the German Bishops' Conference. 2005. *Der Religionsunterricht vor neuen Herausforderungen*. (Die deutschen Bischöfe Nr. 80). Bonn.
- Secretariat of the German Bishops' Conference. 2016. *Die Zukunft des konfessionellen Religionsunterrichts. Empfehlungen für die Kooperation des katholischen mit dem evangelischen Religionsunterricht*. (Die deutschen Bischöfe Nr. 103). Bonn.
- Siepert, H. 2025. "Nauczanie papieża Franciszka w Kwestii Rozwoju systemów Sztucznej Inteligencji – Wybrane Zagadnienia." *Ateneum Kapłańskie* 184, no. 1: 47–60.
- Smith, J. 2024. "Faith, Technology, and the Ethics of AI." In *Handbook on the Ethics of Artificial Intelligence*, edited by D. J. Gunkel, 37–48. Edward Elgar Publishing. <https://doi.org/10.4337/9781803926728.00008>.
- Stanisz, P. 2025. "Religious Education in Schools: The Crisis in State-Church Relations in Poland." Accessed May 29, 2025. <https://www.vaticannews.va/en/church/news/2025-02/poland-religious-education-schools-state-crisis-stanisz.html>.
- Syukur, F. A., A. Maghfurin, U. Marhamah, and P. Jehwae. 2024. "Integration of Artificial Intelligence in Islamic Higher Education: Comparative Responses between Indonesia and Thailand." <https://doi.org/10.31538/nzh.v7i3.13>.
- Szepietowski, M. 2023. "Kościół a sztuczna inteligencja: wielki potencjał to jednocześnie wielka odpowiedzialność." Accessed May 28, 2025. <https://opoka.org.pl/biblioteka/X/XK/kosciol-a-sztuczna-inteligencja>.
- Sznajder, P. 2023. "Chrześcijańska Idea Wcielenia a Koncepcja Technologicznej osobliwości." *Teologia i Człowiek* 62, no. 2: 59–79. <https://doi.org/10.12775/TiCz.2023.010>.
- Termin, K. 2024. "KI-Tools mit Schüler:Innen Nutzen: Möglichkeiten zum Einsatz von KI im Religionsunterricht." *Grundschule Religion* 88: 28–29.
- Turek, A. 2020. "Wybrane narzędzia TIK w Zdalnym Nauczaniu Religii." *Zeszyty Formacji Katechetów* 2–3: 97–105. <https://doi.org/10.47424/tasavvur.1554199>.
- UNESCO. 2021. "AI and Education: Guidance for Policy-Makers." Accessed September 5, 2025. <https://teachertaskforce.org/sites/default>

lt/files/2023-07/2021_UNESCO_AI-and-education-Guidance-for-policy-makers_EN.pdf.

UNESCO. 2024. "AI Competency Framework for Teachers." Accessed September 5. https://www.cedefop.europa.eu/files/unesco_ai_competency_framework_for_teachers.pdf.

Viberg, O, M. Cukurova, Y. Feldman–Maggor, et al. 2023. "Teachers' Trust and Perceptions of AI in Education: The Role of Culture and AI Self-Efficacy in Six Countries." *arXiv*. <https://doi.org/10.48550/arxiv.2312.01627>.

Walldorf, J. 2020. "Mensch und Maschine. Entwicklungen künstlicher Intelligenz (KI) als Ausgangspunkt Anthropologisch-Ethischer Lernprozesse in der Oberstufe." *RPI-Impulse* 2: 23–25.

Yakut, I. 2025. "The Relationship Between Postmodern Religiosity and Artificial Intelligence Anxiety." *Tasavvur – Tekirdag Theology Journal* 10, no. 2: 899–940.

Yusu, A., N. Pervin, M. Román-González, and N. Noor. 2024. "Generative AI in Education and Research: A Systematic Mapping Review." *Review of Education* 12, no. 2: e3489. <https://doi.org/10.1002/rev3.3489>.

Zajac, M. 2024. "Multimedia Wsparciem dla Katechezy – Szanse i zagrożenia." *Roczniki Teologiczne* 71, no. 3: 25–38. <https://doi.org/10.18290/rt2024.13>.

Zatwardnicki, S. 2023. "John C. Lennox, 2084. Sztuczna inteligencja i przyszłość ludzkości, tłum. Z. Kościuk, Fundacja Prodeoteo, Warszawa 2023." *Teologia w Polsce* 17, no. 2: 251–260.

Zawacki-Richter, O., V. I. Marín, M. Bond, and F. Gouverneur. 2019. "Systematic Review of Research on Artificial Intelligence Applications in Higher Education – Where Are the Educators?" *International Journal of Educational Technology in Higher Education* 16, no. 1: 1–27. <https://doi.org/10.1186/s41239-019-0171-0>.

Zhang, J., S. Wenlong, and Y. Liu. 2025. "Cognitive Bias in Generative AI Influences Religious Education." *Scientific Reports* 15, no. 1: 15720. <https://doi.org/10.1038/s41598-025-99121-6>.

Zormanova, L., and H. Vavřiková. 2025. "Attitudes of Czech and Polish Teachers Towards the Use of Artificial Intelligence in Schools." *International Journal of Research in E-Learning* 11, no. 1: 1–23. <https://doi.org/10.31261/IJREL.2025.11.1.02>.

Zweig, K. 2020. "Künstliche Intelligenz im Religionsunterricht: Wer soll den Menschen richten dürfen?" Accessed May 28, 2025. https://www.erzbistum-koeln.de/export/sites/ebkportal/kultur_und_bildung/-schul/en/.content/documentcenter/zeitschrift_impulse/Jahrgang_2020/20imp3basisartikel.pdf.