Jurnal Ilmiah Multidisiplin
Vol.4, No.1, January 2027, hal.54-72
e-ISSN: 3031-769X
DOI: 10.62282/juilmu.v4i1.54-72
https://jurnal.yayasanyutapendidikancerdas.com/index.php/juilmu

Submitted on 13/10/2026;
Revised on 28/10/2026;
Accepted on 14/11/2026;

Artificial Intelligence in Christian Religious Education: Reconstructing Teachers' Roles in Developing Students' Digital Literacy and Critical Thinking

Yunardi Kristian Zega[1]*, Andrea Elfata Ratulangi[2], Ryanto Adilang[3],
Stefanus Meo Nekin[4], Sharon Long Saging[5]
[1,2]Politeknik Negeri Kupang, Kupang, Indonesia
[3]Vrije Universiteit Amsterdam, Amsterdam, Netherlands
[4]Bethel Church Malaysia, Kuching, Malaysia
[5]Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia
*Corresponding Author: yunardichristian@gmail.com

Abstract
The rapid development of artificial intelligence, particularly generative artificial intelligence, is transforming how students access information and learn, including in Christian Religious Education. While artificial intelligence offers opportunities for personalized learning and richer engagement with biblical and theological content, it also raises concerns about inaccurate or biased religious content, over-reliance, weakened critical thinking, ethical risks, and the erosion of the relational and spiritual dimensions of faith formation. This study aims to reconstruct the roles of Christian religious education teachers in artificial intelligence-based learning so that it strengthens students' digital literacy and critical thinking within Christ-centered formation. A qualitative design using library research and conceptual analysis was employed. A corpus of 52 sources, comprising peer-reviewed studies published between 2018 and 2026 together with seminal works and policy documents regardless of publication year, was selected through explicit criteria and analyzed using reflexive thematic analysis and conceptual synthesis. The synthesis indicates that artificial intelligence shifts Christian Religious Education from content transmission toward guided inquiry; that its opportunities are realized only when its risks are mediated pedagogically and ethically; that teachers' roles must be reconstructed as learning facilitators, spiritual mentors, and digital ethics guides; and that digital literacy and critical thinking can be integrated through the evaluation and theological discernment of machine-generated content. The study proposes the Christ-Centered EEDE Framework (exploring, evaluating, discerning, and embodying), which integrates these elements into a teacher-guided learning cycle and offers a testable foundation for ensuring that artificial intelligence serves, rather than replaces, faith formation.

Keywords: artificial intelligence; Christian religious education; critical thinking; digital literacy; teacher roles

JUILMU is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).

INTRODUCTION

Artificial intelligence (AI) has become one of the most influential forces reshaping education. Systematic reviews show that AI applications in education have expanded across profiling and prediction, assessment and evaluation, adaptive systems, and intelligent tutoring (Crompton & Burke, 2023; Zawacki-Richter et al., 2019), and that they increasingly affect administration, teaching, and learning (Chen et al., 2020). The emergence of generative AI and large language models such as ChatGPT has further accelerated this transformation by enabling students to obtain explanations, summaries, and answers instantly (Kasneci et al., 2023; Lo, 2023). International organizations have responded by issuing guidance that emphasizes a human-centered, ethical, and inclusive use of AI in education (Miao et al., 2021; Miao & Holmes, 2023). In Indonesia, the national AI strategy (*Strategi Nasional Kecerdasan Artifisial Indonesia 2020–2045*) places education and research among its priority areas, indicating that AI is expected to become part of the national educational landscape (Badan

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Pengkajian dan Penerapan Teknologi, 2020). These developments indicate that, globally and in Indonesia, the question is no longer whether AI will enter classrooms but how it should be used to support genuine learning and human formation.

Christian Religious Education (CRE; *Pendidikan Agama Kristen*) faces particular challenges in this context. In the Indonesian school system, CRE refers to the religious education subject for Protestant students and is distinct from Catholic Religious Education (*Pendidikan Agama Katolik*); this study therefore writes primarily from a Protestant perspective while drawing on ecumenical sources where relevant. CRE aims not only at cognitive understanding of the Christian faith but also at the formation of students' spirituality and character in the likeness of Christ. Pantan (2023) argues that ChatGPT can weaken CRE understood as a process of becoming like Jesus, although it remains useful for gaining a broad overview of a topic. Boiliu (2024) notes that AI operates algorithmically without a spiritual dimension, so its use in Christian education must be guided by spiritual values. Y. Waruwu (2024) identifies the potential of AI for personalizing spiritual learning but warns of privacy risks, weakened teacher-student relationships, and the digital divide. Studies of religious education internationally report similar tensions: AI can enhance personalization and efficiency but risks theological distortion, over-reliance, and conformity of thought (Papakostas, 2025), and generative AI tools tend to present religion through particular moralistic framings (Tsuria & Tsuria, 2024). Empirical evidence further suggests that heavy reliance on AI tools is associated with lower critical thinking through cognitive offloading (Gerlich, 2025; Zhai et al., 2024). However, this evidence comes mainly from a cross-sectional survey of adults (Gerlich, 2025) and from a systematic review dominated by higher-education studies (Zhai et al., 2024), so causal and school-level inferences remain limited. For CRE, these risks are nevertheless serious because students may accept AI-generated religious content uncritically, without the theological discernment and relational guidance that faith formation requires.

These changes also transform the role of teachers. AI can support teachers in planning, implementing, and assessing learning, but its effective use depends on teachers' professional knowledge and judgment (Celik et al., 2022). Celik (2023) extends the technological pedagogical content knowledge framework (Mishra & Koehler, 2006) into Intelligent-TPACK and shows that ethical knowledge is central to teachers' integration of AI-based tools. Ouyang and Jiao (2021) describe a shift from AI-directed to AI-supported and AI-empowered paradigms in which learners exercise agency while humans remain in the loop. In the Indonesian CRE context, scholars emphasize that teachers must strengthen their professional competence for Society 5.0 (Lahope et al., 2024), respond to the post-truth phenomenon by training students to think critically (Karlau & Rukua, 2023), and act professionally to develop students holistically in the digital era (Tari & Hutapea, 2020). Topayung (2025) further describes CRE teachers as spiritual leaders who must build deep relationships with students amid technological disruption, while Condrey (2024) proposes that the roles of Christian educators in the ChatGPT era can be understood through the prophetic, priestly, and kingly offices of Christ. However, most of these Indonesian studies are conceptual, and empirical evidence on how Indonesian CRE teachers actually use AI, and how ready they are to do so, remains scarce.

Previous studies have explored several aspects of this issue. Research on digital literacy in CRE has discussed digital literacy as a means of building the integrity of church youth (Purba, 2022), the importance of digital intelligence for CRE educators and students (Santosa, 2022), digital literacy based on Christian education as a means of character formation (Pandie, 2022), and the integration of digital literacy with incarnational theology (Kristiani & Widianing, 2026). Research on critical thinking has shown that mind mapping can enhance students' critical thinking in CRE (Halawa et al., 2024) and that integrating spirituality and critical reasoning can deepen students' understanding of Christian values in the digital era (Gulo & Tapilaha, 2024). Research on digital ethics has grounded AI ethics in the *imago Dei* (Tandana, 2023), proposed the integration of Christian values such as honesty, justice, and love into digital society (E. W. Waruwu & Lawalata, 2024), and positioned Christian ethics as the foundation of character education in the digital era (Sari & Bermuli, 2021). Internationally, researchers have examined ChatGPT as a tool for Bible teaching in confessional religious

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

education (Chrostowski & Najda, 2025), religious studies teachers' perceptions of AI (Kurata et al., 2025), and social attitudes toward AI in Christian education (Tran & Nguyen, 2021). Protestant and evangelical scholars have also begun to reflect theologically on AI, emphasizing human dignity, moral responsibility, and wisdom in its design and use (Schuurman, 2019; Wyatt & Williams, 2021), while religious education journals increasingly publish studies on AI in faith-based learning (Chrostowski & Najda, 2025; Papakostas, 2025).

These studies provide valuable insights, but they tend to address AI, digital literacy, critical thinking, and teachers' spiritual roles separately. Studies on AI in CRE focus mainly on opportunities and threats, studies on digital literacy in CRE rarely address AI literacy specifically, and studies on critical thinking seldom consider how students should evaluate AI-generated religious content. Meanwhile, international frameworks on AI literacy (Long & Magerko, 2020; Ng et al., 2021) and on the ethics of AI in education (Akgun & Greenhow, 2022; Holmes et al., 2022) are generally secular and do not address the spiritual formation that is central to CRE. Consequently, there is limited conceptual work that integrates AI use, digital literacy, critical thinking, and teachers' spiritual mentoring into a coherent framework for reconstructing the roles of CRE teachers. Such a framework is also a necessary precondition for the empirical classroom studies that are still lacking in the Indonesian CRE context.

Therefore, this study aims to (1) analyze the transformation of CRE learning in the AI era, (2) identify the opportunities and challenges of using AI in CRE, (3) reconstruct the roles of CRE teachers as facilitators, spiritual mentors, and digital ethics guides, (4) explain the integration of digital literacy and critical thinking in CRE, and (5) develop a conceptual framework for AI-based CRE centered on Christian values. The novelty of this study lies in the development of the Christ-Centered EEDE Framework, consisting of exploring, evaluating, discerning, and embodying, which integrates artificial intelligence, digital literacy, critical thinking, and spiritual mentoring by CRE teachers. The acronym EEDE, formed from the initial letters of the four phases, is used deliberately instead of "4E" to avoid confusion with 4E cognition in cognitive science, which refers to embodied, embedded, enactive, and extended cognition (Newen et al., 2018); in this study, embodying denotes the enactment of learning in daily life rather than a theory of cognition. Theoretically, the study contributes to the discourse on AI in religious education by connecting AI literacy, critical thinking theory, and Christian theological anthropology. Practically, it offers CRE teachers, schools, and teacher education institutions a framework for using AI responsibly to strengthen, rather than replace, the relational and spiritual dimensions of faith formation.

METHODS

This study employed a qualitative design using library research and conceptual analysis. Library research was used because the study aimed to examine, compare, and synthesize existing knowledge on AI, digital literacy, critical thinking, and the roles of CRE teachers rather than to collect field data. An integrative review orientation was adopted because it allows empirical and conceptual literature from different disciplines to be critically examined and synthesized in order to generate new frameworks and perspectives (Snyder, 2019). The conceptual analysis followed theory synthesis and model-building approaches, in which concepts from different theoretical streams are integrated into a higher-order framework that explains their relationships (Jaakkola, 2020). The research objects were scholarly texts and policy documents addressing AI in education, AI in religious and Christian education, digital literacy, critical thinking, digital ethics, and the roles of CRE teachers. As the study did not involve human participants, ethical approval was not required.

The literature search was conducted through Google Scholar, Garuda (*Garba Rujukan Digital*), Neliti, publisher and journal websites, and DOI registries. Search terms were formulated in Indonesian and English and combined using Boolean operators, including "pendidikan agama Kristen" AND ("kecerdasan buatan" OR "artificial intelligence" OR ChatGPT), "literasi digital" AND "pendidikan agama Kristen", "guru pendidikan agama Kristen" AND ("era digital" OR "society 5.0"), "berpikir kritis" AND "pendidikan agama Kristen", "artificial intelligence in education", "generative AI" AND education, "AI literacy", "AI ethics" AND education,

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

"critical thinking" AND "artificial intelligence", and "artificial intelligence" AND ("religious education" OR theology). The search focused on publications from 2018 to 2026, the period in which AI and generative AI became prominent in educational discourse, while seminal works and policy documents were included when they provided essential conceptual foundations. The searches were conducted between January 2026 and October 2026, with the final search performed on 15 October 2026, which is important because generative AI is a rapidly developing field. Subscription-based databases such as Scopus, Web of Science, ERIC, and the ATLA Religion Database were not searched directly for this review; to reduce the risk of omission, international articles indexed in these databases were traced through Google Scholar and DOI registries, and reference lists of key articles were checked for additional eligible sources. This limitation is acknowledged in the Discussion.

The selection of sources followed explicit criteria. The inclusion criteria were: (1) peer-reviewed journal articles, peer-reviewed conference papers, scholarly books, or official policy documents issued by international or ecclesial institutions; (2) publication between 2018 and 2026 for empirical and review studies, with seminal works included regardless of publication year; (3) relevance to at least one focal theme, namely AI in education, AI in religious or Christian education, digital literacy, critical thinking, digital or AI ethics, and the roles of CRE teachers; and (4) verifiable bibliographic information, preferably with a digital object identifier (DOI). The exclusion criteria were: (1) non-scholarly sources such as blogs, news reports, and commercial content; (2) studies focusing solely on the technical development of AI without educational relevance; (3) duplicate publications; and (4) sources without verifiable bibliographic details. The selection proceeded in four stages. The database searches identified 214 records (Google Scholar: 120; Garuda: 34; Neliti: 18; publisher and journal websites and DOI registries: 42). After 36 duplicates were removed, the titles and abstracts of 178 records were screened, and 92 records were excluded because they were non-scholarly, technically oriented without educational relevance, or outside the focal themes. The full texts of 86 sources were then assessed for eligibility, and 34 were excluded because of insufficient relevance to the focal themes or unverifiable bibliographic details. Through this process, 52 sources were retained for analysis, consisting of 18 national journal articles, 26 international journal articles, and 8 seminal works, conference papers, and policy documents. Methodological references used to design the procedure (Braun & Clarke, 2006, 2019, 2021; Jaakkola, 2020; Snyder, 2019) are not counted in this corpus. In addition, a small number of contextual sources, namely national policy and legal documents, UNESCO's AI competency framework for students, a reference work on 4E cognition, and several theological works on AI and discernment, were consulted to situate the synthesis in the Indonesian school setting and to balance its theological basis; these are cited but were not coded as part of the corpus.

The data were analyzed using reflexive thematic analysis through six phases: familiarization with the data, generating initial codes, generating initial themes, developing and reviewing themes, refining, defining, and naming themes, and writing up (Braun & Clarke, 2006, 2019, 2021). Each source was first recorded in a synthesis matrix containing the author, year, context, focus, method, main findings, and relevance to the research objectives, which was managed using Microsoft Excel for Microsoft 365. The coding combined deductive codes derived from the five research objectives with inductive codes developed through close reading of the literature, such as cognitive offloading, theological distortion, human-in-the-loop, AI literacy, and *imago Dei*. Coding was carried out by Yunardi Kristian Zega, and Andrea Elfata Ratulangi independently reviewed the codes assigned to all sources; disagreements were discussed until consensus was reached, and the decisions were documented in the audit trail. Consistent with the reflexive approach, themes are understood as patterns of shared meaning actively constructed by the researchers through engagement with the literature rather than as entities that simply emerge from it (Braun & Clarke, 2019). The codes were organized into five themes that structure the Results and Discussion section.

The conceptual synthesis was then carried out by identifying relationships among the themes, comparing secular frameworks of AI in education with Christian theological perspectives, and integrating them into a conceptual framework (Jaakkola, 2020). Trustworthiness was maintained through source triangulation across national and international, empirical and conceptual, and educational and theological literature; through an audit

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

trail documenting search terms, selection decisions, and coding categories; and through repeated checking of interpretations against the original sources. The search log, synthesis matrix, and coding scheme will be included as supplementary material with the final submission so that readers can trace the analytical decisions.

RESULTS AND DISCUSSION

The thematic analysis produced five interrelated themes that correspond to the research objectives. Table 1 summarizes these themes, their representative sources, and the core insight that each contributes to the reconstruction of teachers' roles in AI-based CRE. The themes are discussed sequentially, moving from the transformation of learning to its opportunities and challenges, the reconstruction of teachers' roles, the integration of digital literacy and critical thinking, and the development of a conceptual framework.

Table 1. Thematic Map of the Reviewed Literature

Theme	Representative Sources	Core Insight
Transformation of CRE learning in the AI era	Ouyang & Jiao (2021); Kasneci et al. (2023); Pantan (2023); Papakostas (2025)	AI shifts CRE from content transmission toward guided inquiry, requiring learner agency with humans in the loop.
Opportunities and challenges of AI in CRE	Y. Waruwu (2024); Chrostowski & Najda (2025); Gerlich (2025); Zhai et al. (2024); Akgun & Greenhow (2022)	Personalization and access are counterbalanced by inaccuracy, bias, over-reliance, privacy, and relational risks.
Reconstruction of CRE teachers' roles	Celik (2023); Condrey (2024); Topayung (2025); Karlau & Rukua (2023)	Teachers are repositioned as learning facilitators, spiritual mentors, and digital ethics guides.
Digital literacy and critical thinking	Vuorikari et al. (2022); Ng et al. (2021); Facione (1990); Halawa et al. (2024); Kristiani & Widianing (2026)	AI-generated content becomes an object of evaluation and theological discernment.
Christ-centered conceptual framework	Groome (2011); Tandana (2023); Dicastery for the Doctrine of the Faith & Dicastery for Culture and Education (2025); Holmes et al. (2022)	AI integration must be anchored in theological anthropology and relational formation.

Source: Synthesis of the reviewed literature, 2026.

Transformation of CRE Learning in the AI Era

The first theme concerns how AI transforms CRE learning. The literature shows that AI changes the ecology of learning by altering how knowledge is accessed, produced, and validated. Reviews of AI in education show that AI is used for profiling and prediction, intelligent tutoring, assessment, and adaptive systems (Zawacki-Richter et al., 2019), and later reviews confirm the growth of AI assistants and AI-supported management of student learning (Crompton & Burke, 2023). Generative AI extends these functions by producing human-like texts on demand, enabling students to request explanations of biblical passages, summaries of doctrines, or reflections on moral issues within seconds (Kasneci et al., 2023; Lo, 2023). In CRE, this means that the teacher and the textbook may no longer be the only, or even the primary, sources of religious information to which students have access, although empirical data on how Indonesian students use AI and other online sources for religious learning are still needed to confirm this possibility.

This transformation can be understood through the three paradigms proposed by Ouyang and Jiao (2021). In the AI-directed paradigm, learners are recipients of AI-delivered content; in the AI-supported paradigm, learners collaborate with AI; and in the AI-empowered paradigm, learners take the lead while AI augments human intelligence. For CRE, the AI-directed paradigm is the most problematic because it reduces faith learning to the consumption of information. Pantan (2023) warns that ChatGPT may weaken CRE as a process of becoming like Jesus, and Papakostas (2025) argues that AI should support rather than replace the relational and formative dimensions of religious education. The reviewed literature therefore suggests that the desirable transformation is a movement toward AI-supported and AI-empowered learning, in which students actively question, compare, and interpret information under the guidance of teachers.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

The transformation also shifts the focus of CRE learning from content transmission toward guided inquiry and meaning-making. Gulo and Tapilaha (2024) propose a holistic model that integrates spiritual formation with critical reasoning, and Y. Waruwu (2024) shows that AI can be used to personalize spiritual learning. Chrostowski and Najda (2025) map ChatGPT onto a five-step model of Bible teaching, demonstrating that AI can be placed within a structured didactic sequence rather than used as an unstructured answer machine. Similarly, Sidabutar and Munthe (2022) argue that AI need not be regarded as a threat to the aims of CRE, provided that teachers remain involved in directing learning toward the formation of the whole person. These findings indicate that the impact of AI on CRE depends less on the technology itself than on the pedagogical design in which it is embedded.

The transformation of CRE in the AI era can be explained by the changing relationship between information and formation. When information becomes abundant and instantly available, the distinctive value of CRE lies not in supplying information but in forming the capacities to interpret it truthfully and to live it faithfully. This interpretation is consistent with Groome's (2011) view that Christian education moves from life to faith and back to life, so that knowledge is always oriented toward lived discipleship. It also echoes Oviedo's (2022) call for theology to receive AI positively but not uncritically, and Dorobantu's (2022) observation that AI raises fundamental questions of theological anthropology, including the meaning of the *imago Dei*. Hence, AI transforms CRE not by replacing its goals but by making its formative goals more urgent.

Opportunities and Challenges of AI in CRE

The second theme maps the opportunities and challenges of AI use in CRE. Regarding opportunities, the literature identifies at least four. First, AI enables personalized learning by adjusting explanations, examples, and exercises to students' needs and pace (Kasneci et al., 2023; Y. Waruwu, 2024). Second, AI enriches access to biblical and theological resources, such as historical background, word studies, and comparisons of interpretations, which can support deeper text analysis (Chrostowski & Najda, 2025; Y. Waruwu, 2024). Third, AI can support teachers in planning lessons, developing materials, and providing feedback, thereby freeing time for relational and mentoring work (Celik et al., 2022). Fourth, AI can serve as a dialogical partner that stimulates questions and discussion, provided that its outputs are treated as material for examination rather than as final answers (Rudolph et al., 2023). The preliminary survey by Tran and Nguyen (2021) on social attitudes toward AI involvement in Christian education in Vietnam further suggests that, at least in that context, the use of AI in faith-based learning is beginning to attract practical interest, although its findings cannot be generalized to Indonesia.

The challenges, however, are equally significant. The first challenge is the accuracy and bias of AI-generated content. Large language models may generate plausible but incorrect information, and their outputs can reflect biases present in their training data (Kasneci et al., 2023; Lo, 2023). In religious matters, Tsuria and Tsuria (2024) show that generative AI tools present religion through moralistic approaches, while Papakostas (2025) warns of theological distortion and conformity of thought. Chrostowski and Najda (2025) likewise caution against bias, inaccuracy, and reduced personal interaction, which require teachers to verify and correct AI outputs. The second challenge is over-reliance and cognitive offloading. Gerlich (2025) found, in a cross-sectional survey of adults, that more frequent AI use was associated with lower critical thinking, partly explained by cognitive offloading and particularly among younger participants, while Zhai et al. (2024), in a systematic review consisting largely of higher-education studies, report that uncritical acceptance of AI outputs weakens decision-making and analytical reasoning. Essel et al. (2024) further show, among undergraduate students, that ChatGPT use affects critical, reflective, and creative thinking, underlining that its effect depends on how the tool is used. Because these studies involve adults or university students, their transfer to school-age CRE learners is an assumption that requires empirical confirmation; they are therefore used here to identify plausible risks rather than to establish effects in CRE classrooms.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

The third challenge concerns ethics, including privacy, surveillance, loss of autonomy, and algorithmic bias (Akgun & Greenhow, 2022), as well as the lack of systematic ethical reflection in research on AI in education (Bond et al., 2024; Holmes et al., 2022). The fourth challenge is relational and spiritual. Y. Waruwu (2024) warns that AI may weaken teacher-student relationships, Boiliu (2024) emphasizes that AI lacks a spiritual dimension, and Pantan (2023) argues that formation in Christ cannot be delegated to a machine. The fifth challenge is the digital divide and teachers' readiness. Y. Waruwu (2024) points to unequal access to technology, while Lahope et al. (2024) and Santosa (2022) show that the professional and digital competencies of CRE educators still need to be strengthened.

The sixth challenge concerns the age-related and legal conditions of student use, which are particularly relevant because the framework proposed in this study assumes that students interact with AI. UNESCO's guidance recommends setting the minimum age for the use of generative AI tools in the classroom at 13 years (Miao & Holmes, 2023), and many generative AI services set similar age limits and require parental consent for minors in their terms of use. In Indonesia, the Personal Data Protection Law (Law No. 27/2022) classifies children's data as specific personal data and requires the consent of parents or guardians for its processing (Pemerintah Republik Indonesia, 2022). Since students may enter personal reflections, prayers, or questions of faith into AI tools, CRE teachers and schools need to ensure age-appropriate and teacher-mediated use, avoid requiring students to create personal accounts where this is not permitted, obtain parental consent where required, and protect students' personal data.

These findings show that the opportunities and challenges of AI are two sides of the same characteristics. The ability of AI to generate instant and fluent answers is both its greatest strength and its greatest danger: it can support learning, but it can also bypass the cognitive and spiritual effort through which understanding and faith mature. This explains why the reviewed studies converge on the need for human mediation (Celik et al., 2022; Ouyang & Jiao, 2021). Compared with general educational studies, which emphasize academic integrity and assessment (Lo, 2023; Rudolph et al., 2023), studies in religious education add concerns about theological truth, spiritual formation, and community (Boiliu, 2024; Papakostas, 2025). Consequently, the decisive factor in the use of AI in CRE is the quality of teachers' pedagogical, ethical, and spiritual mediation, which is addressed in the next theme.

Reconstruction of CRE Teachers' Roles

The third theme concerns the reconstruction of CRE teachers' roles. The literature indicates that AI does not eliminate the need for teachers but changes the nature of their work. Celik et al. (2022) show that AI can assist teachers but is limited by its reliability, contextual fit, and teachers' competence, while Kim et al. (2022) find that leading teachers perceive students' learning as moving from learning about AI to learning from AI and learning together with AI, which requires teachers to address AI principles, ethics, and error analysis. Celik (2023) further shows that pedagogical and ethical knowledge, rather than technological knowledge alone, shapes teachers' use of AI. On this basis, the synthesis identifies three interrelated roles of CRE teachers. The roles were derived from clusters of codes: codes on task design, inquiry, verification, curriculum adaptation, co-learning with AI, and assessment clustered into the facilitator role; codes on relational presence, pastoral care, faith modeling, digital discipleship, and the involvement of family and church clustered into the spiritual mentor role; and codes on privacy, bias, academic integrity, post-truth, and human dignity clustered into the digital ethics guide role. Other roles proposed in the literature, such as curriculum designer, co-learner with AI, and assessor, are not treated separately but are absorbed into the facilitator role, because in the reviewed sources they describe aspects of how teachers design, guide, and assess AI-supported learning. The three roles are summarized in Table 2.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Table 2. Reconstructed Roles of CRE Teachers in AI-Based Learning

Role	Core Tasks in AI-Based CRE	Key Sources
Learning facilitator	Designing AI-supported inquiry tasks and assessments; guiding students to question, compare, and verify AI outputs against Scripture and credible sources; managing collaborative learning; adapting AI use to students' age and needs	Andrianti (2018); Celik (2023); Kim et al. (2022); Ouyang & Jiao (2021)
Spiritual mentor	Building personal relationships; accompanying students' faith questions; modeling prayerful reflection; connecting learning with family and church life	Condrey (2024); Groome (2011); Topayung (2025); Y. Waruwu (2024)
Digital ethics guide	Teaching honest, safe, and responsible AI use; addressing privacy, bias, plagiarism, and misinformation; grounding digital ethics in the *imago Dei* and love of neighbor	Akgun & Greenhow (2022); Karlau & Rukua (2023); Tandana (2023); E. W. Waruwu & Lawalata (2024)

Source: Synthesis of the reviewed literature, 2026.

The first role is the teacher as a learning facilitator. In AI-based CRE, the teacher no longer functions mainly as a transmitter of content but as a designer of learning experiences in which AI is used purposefully. Andrianti (2018) describes the CRE teacher as a facilitator of literacy learning who prepares facilities, media, and literature and creates a supportive emotional and social climate. In the AI era, this role extends to selecting appropriate AI tools, formulating tasks that require higher-order thinking, and guiding students to compare AI outputs with Scripture and credible theological sources. This role corresponds to the AI-supported and AI-empowered paradigms (Ouyang & Jiao, 2021) and to the Intelligent-TPACK competencies (Celik, 2023), in which teachers integrate technological, pedagogical, content, and ethical knowledge.

The second role is the teacher as a spiritual mentor. This role safeguards what AI cannot provide: personal presence, pastoral care, and the modeling of faith. Topayung (2025) describes CRE teachers as spiritual leaders engaged in digital discipleship who build deep relationships with students and involve parents and the church. Condrey (2024) offers a theological lens by modeling Christian educators' roles on the prophetic, priestly, and kingly offices of Christ, which respectively emphasize moral vision, the careful stewardship of curricula and safe learning spaces, and accountability through dialogue. Kristiani and Widianing (2026) add that incarnational theology positions the digital space as a place of encounter with faith, implying that the teacher's mentoring presence must also reach students' digital lives. Groome's (2011) emphasis on the faith community as the context of education further indicates that spiritual mentoring involves connecting classroom learning with family and congregational life.

The third role is the teacher as a digital ethics guide. Students need guidance not only on how to use AI but also on how to use it rightly. Akgun and Greenhow (2022) identify privacy, surveillance, autonomy, and bias as key ethical issues in K-12 AI use, and Holmes et al. (2022) call for a community-wide ethical framework. From a Christian perspective, Tandana (2023) grounds AI ethics in the *imago Dei*, emphasizing human dignity, well-being, and autonomy, while E. W. Waruwu and Lawalata (2024) and Sari and Bermuli (2021) present honesty, justice, love, and the character of Christ as foundations of digital ethics. The note *Antiqua et Nova*, issued by the Catholic Church, likewise stresses that AI should complement rather than replace human intelligence and that moral responsibility for its use remains with human persons (Dicastery for the Doctrine of the Faith & Dicastery for Culture and Education, 2025). Although this document belongs to the Catholic magisterial tradition, its core convictions, namely that human beings bear the image of God and remain morally responsible for the tools they create, are shared by Protestant and evangelical reflections on AI, which likewise call for its use in ways that honor human dignity and exercise wisdom and responsible stewardship (Schuurman, 2019; Wyatt & Williams, 2021). It is therefore used here as an ecumenically relevant articulation of a shared Christian anthropology rather than as a confessional norm for Protestant CRE. Karlau and Rukua (2023) underline that CRE teachers need to train students to recognize post-truth content, which makes the ethical role inseparable from the cultivation of critical thinking.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

The reconstruction of these three roles can be explained by the distinctive nature of faith formation. Faith formation is relational, embodied, and communal, whereas AI is computational and impersonal (Boiliu, 2024; Dorobantu, 2022). Therefore, as AI takes over certain informational and administrative functions, the human and spiritual roles of teachers become more, not less, important. Compared with general frameworks of teachers' roles in AI-based education, which emphasize technological and ethical competence (Celik, 2023; Kim et al., 2022), the reconstruction proposed here adds spiritual mentoring as an essential dimension. The three roles are related to, but not identical with, Condrey's (2024) threefold office (*munus triplex*): the digital ethics guide echoes the prophetic office in articulating moral vision and truth, the spiritual mentor echoes the priestly office in caring for students and safeguarding safe learning spaces, and the facilitator echoes the kingly office in ordering the learning environment and holding learning accountable through dialogue. The study does not adopt the threefold office directly because the roles were derived inductively from the code clusters described above and are formulated in functional terms that are recognizable in Indonesian teacher-competency discourse and across Protestant denominations; the threefold office instead serves as a theological lens that confirms the coherence of the three roles. The three roles are interdependent: facilitation without spiritual mentoring risks reducing CRE to information processing, spiritual mentoring without ethical guidance risks leaving students unprepared for digital realities, and ethical guidance without facilitation risks becoming moralistic instruction detached from students' learning experiences.

Integration of Digital Literacy and Critical Thinking in CRE

The fourth theme concerns the integration of digital literacy and critical thinking in CRE. Digital literacy is understood here as digital competence encompassing information and data literacy, communication and collaboration, digital content creation, safety, and problem solving, as formulated in the DigComp 2.2 framework, which also provides examples of knowledge, skills, and attitudes related to interaction with AI systems (Vuorikari et al., 2022). AI literacy forms a specific dimension of this competence. Long and Magerko (2020) define it as a set of competencies that enable individuals to critically evaluate AI technologies, communicate and collaborate effectively with AI, and use AI as a tool, while Ng et al. (2021) organize it into knowing and understanding AI, using and applying AI, evaluating and creating AI, and AI ethics. At the school level, UNESCO's AI competency framework for students organizes AI competencies into a human-centred mindset, the ethics of AI, AI techniques and applications, and AI system design, developed progressively through understanding, applying, and creating (Miao et al., 2024). In CRE, these competencies are needed so that students understand how AI produces religious content, recognize its limitations, and use its outputs responsibly.

Indonesian CRE literature has begun to frame digital literacy in theological terms. Purba (2022) formulates digital literacy for church youth through contrasting choices, namely producing rather than losing, cyber-caring rather than cyberbullying, humility rather than flexing, and blessing rather than cursing. Santosa (2022) shows that both CRE educators and students need digital intelligence, and Pandie (2022) proposes digital literacy based on Christian education as a means of character formation. Kristiani and Widianing (2026) argue that incarnational theology bridges the gap between technical skills and spiritual maturity. These studies show that digital literacy in CRE is not merely a technical skill but a form of Christian discipleship in digital spaces.

Critical thinking, in turn, is understood as purposeful, self-regulatory judgment that results in interpretation, analysis, evaluation, and inference, together with the explanation of the evidential, conceptual, methodological, and contextual considerations on which that judgment is based (Facione, 1990). Ennis (2018) describes critical thinking as reasonable reflective thinking focused on deciding what to believe or do and argues that it can be cultivated across the curriculum. In CRE, Halawa et al. (2024) show that mind mapping helps students organize concepts, identify causal relationships, solve problems, and relate learning to life, while Gulo and Tapilaha (2024) integrate critical reasoning with spiritual formation. In the AI era, critical thinking becomes especially important because AI outputs are fluent and persuasive even when they are inaccurate (Kasneci et al.,

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

2023), and over-reliance on them can weaken analytical reasoning (Gerlich, 2025; Zhai et al., 2024).

The synthesis indicates that digital literacy and critical thinking can be integrated in CRE by making AI-generated content an object of evaluation and theological discernment. Students in junior and senior secondary schools can, for example, ask an AI tool to explain a biblical passage and then evaluate the accuracy of the explanation by comparing it with the biblical text, its literary and historical context, and credible commentaries; identify possible biases or omissions; and discuss what the passage means for their lives. For younger students in primary schools, the same task can be carried out through teacher-mediated demonstration, in which the teacher operates the AI tool and the class evaluates its outputs together, in line with the age considerations discussed above. Such tasks combine information literacy, AI literacy, and the critical thinking skills of interpretation, analysis, evaluation, and inference (Facione, 1990; Ng et al., 2021). They also respond to the recommendation of Rudolph et al. (2023) to teach critical digital literacy instead of banning AI and to the emphasis of Chrostowski and Najda (2025) on teachers' role in checking and correcting AI outputs.

In CRE, however, critical thinking should be complemented by theological discernment. Critical thinking asks whether information is accurate and whether reasoning is sound, whereas theological discernment asks whether an interpretation is faithful to Scripture, consistent with the character of Christ, and conducive to love of God and neighbor. Theological discernment has deep roots in the Christian tradition, in which believers are called to test everything, hold fast to what is good, and discern the will of God (Rom. 12:2; 1 Thess. 5:21; Alkitab Terjemahan Baru, 1974), and in which discernment is understood as a communal practice through which the church interprets Scripture and experience together (Johnson, 1996). Schuurman (2019) similarly frames the Christian response to AI as a task of discernment shaped by Scripture and a Christian worldview. Tsuria and Tsuria (2024) show that generative AI tends to present religion through generalized moralistic approaches, which makes such discernment necessary for recognizing reductions of faith. This explains why digital literacy and critical thinking in CRE cannot be achieved merely through technical training; they require a formative process in which teachers model and guide intellectual humility, honesty, and spiritual sensitivity. Compared with secular AI literacy frameworks (Long & Magerko, 2020; Ng et al., 2021), this integration adds a spiritual-theological dimension that is distinctive to CRE.

Because criteria such as faithfulness to Scripture and consistency with the character of Christ are open to denominational interpretation, the framework does not assume a single interpretive authority. In practice, discernment is exercised within the confessional basis of the school and with respect for the teaching of students' own churches, with Scripture as the primary norm and broadly shared ecumenical convictions, such as those expressed in the historic creeds, as a common baseline. Where legitimate interpretations differ, the teacher presents the range of credible readings, explains the reasons behind them, and helps students articulate and justify their own interpretation through dialogue rather than prescribing a single answer. In this way, the framework seeks to prevent the authority of AI from being replaced by another unexamined authority and instead cultivates students' capacity for responsible, communal, and humble interpretation.

A Christ-Centered Conceptual Framework for AI-Based CRE

The fifth theme synthesizes the previous findings into a conceptual framework, termed the Christ-Centered EEDE Framework for AI-based CRE. The framework is constructed from four insights: AI transforms CRE toward guided inquiry; the opportunities of AI can be realized only through pedagogical, ethical, and spiritual mediation; teachers' roles must be reconstructed as facilitators, spiritual mentors, and digital ethics guides; and digital literacy and critical thinking can be integrated through the evaluation and theological discernment of AI-generated content. As shown in Figure 1, the framework consists of a Christ-centered core, a four-phase learning cycle, and three teacher roles that accompany the cycle. Its components are presented as propositions derived from the synthesis that still require empirical testing.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

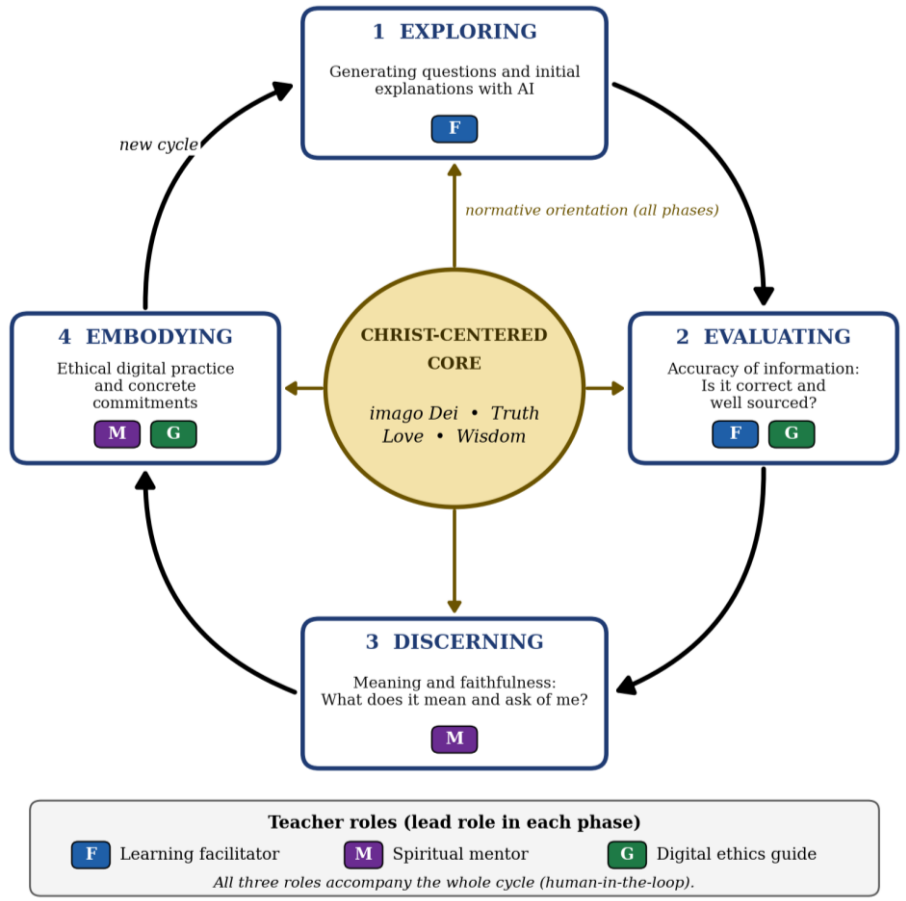


Figure 1. The Christ-Centered EEDE Framework for AI-Based Christian Religious Education
Source: Authors' conceptual synthesis, 2026.

The core of the framework consists of four Christian values centered on Christ: the *imago Dei*, truth, love, and wisdom. These values were selected because they correspond to the four normative concerns that recurred across the coded literature. The *imago Dei* responds to codes on human dignity, autonomy, and theological anthropology (Dorobantu, 2022; Tandana, 2023) and is grounded in the biblical teaching that human beings are created in the image of God (Gen. 1:26–27). Truth responds to codes on inaccuracy, theological distortion, and post-truth (Karlau & Rukua, 2023; Papakostas, 2025; Tsuria & Tsuria, 2024) and is grounded in Christ's self-identification as the truth (John 14:6). Love responds to codes on relationality, honesty, justice, and care for others (Sari & Bermuli, 2021; E. W. Waruwu & Lawalata, 2024) and is grounded in the great commandment to love God and neighbor (Matt. 22:37–39). Wisdom responds to codes on critical thinking, judgment, and discernment (Facione, 1990; Gulo & Tapilaha, 2024) and is grounded in the biblical understanding of wisdom as rooted in the fear of the Lord and given by God (Prov. 9:10; Jas. 1:5); biblical references follow the Alkitab Terjemahan Baru (1974). Other values that appear in the literature, such as justice, honesty, humility, and stewardship, are not omitted but are treated as expressions of these four: justice and honesty as expressions of truth and love, humility as an expression of wisdom, and stewardship as an implication of the human vocation as bearers of the *imago Dei*. This core functions as the normative orientation of every learning phase. Grounding the framework in the *imago Dei* is consistent with *Antiqua et Nova*, which insists that AI must remain at the service of the human person (Dicastery for the Doctrine of the Faith & Dicastery for Culture and Education, 2025), and with Protestant reflections that ground AI ethics in human dignity and responsibility (Schuurman, 2019; Wyatt & Williams, 2021). The core ensures that AI is treated as a tool for learning rather than as a source of authority in matters of faith.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

The four phases form a cycle, and each phase has a distinct object and guiding question. The exploring phase concerns generating material: students use AI within teacher-designed tasks to raise questions and obtain initial explanations, reflecting the AI-supported paradigm (Ouyang & Jiao, 2021). The evaluating phase concerns the accuracy of information: students ask whether AI outputs are factually correct, complete, and supported by Scripture, its context, and credible sources, thereby developing information and AI literacy (Ng et al., 2021; Vuorikari et al., 2022). The discerning phase concerns meaning and faithfulness: working with the verified material, students ask what it means, whether an interpretation is faithful to Scripture and consistent with the character of Christ, and what it asks of them, applying interpretation and inference (Facione, 1990) together with theological discernment. Thus, although critical thinking skills operate in both phases, evaluating is directed at the reliability of information, whereas discerning is directed at its meaning and its personal and communal application; the two phases also produce different observable outputs, namely a verified and corrected account in the first case and a justified interpretation and response in the second. The embodying phase concerns practice: students translate their learning into ethical digital practices and concrete commitments, consistent with Groome's (2011) movement from faith back to life. The operational components, indicators, and assessment of each phase are presented in Table 3.

Table 3. Operational Components of the Christ-Centered EEDE Framework

Phase and Main Teacher Role	Learning Activities and AI Use	Target Competencies, Indicators, and Assessment
Exploring (learning facilitator)	Students use AI within teacher-designed prompts and time limits to generate questions, background information, and initial explanations of a biblical theme; for students under 13, the teacher operates the AI tool and displays its outputs	Curiosity, question formulation, and basic AI literacy. Indicator: students formulate relevant questions and purposeful prompts. Assessment: prompt logs and inquiry worksheets (formative)
Evaluating (learning facilitator and digital ethics guide)	Checking the accuracy of AI outputs against the biblical text, its literary and historical context, and credible commentaries; identifying factual errors, bias, and omissions; acknowledging AI use honestly	Information and AI literacy, accuracy checking, and academic honesty. Indicator: students identify and correct errors and cite sources (Is the information accurate?). Assessment: verification checklists and source-comparison rubrics
Discerning (spiritual mentor)	Group dialogue and personal reflection on what the verified material means; weighing interpretations against Scripture as a whole, the teaching of the school's and students' church traditions, and the character of Christ	Interpretation, inference, and theological discernment. Indicator: students articulate and justify an interpretation, recognize legitimate plural readings, and relate the text to life (Is the interpretation faithful, and what does it ask of me?). Assessment: reflective journals and discussion rubrics with descriptive feedback
Embodying (spiritual mentor and digital ethics guide)	Creating ethical digital content, carrying out digital service projects, and formulating commitments for responsible technology use with the involvement of family and church	Responsible digital citizenship and Christian character. Indicator: students complete a project and state concrete commitments. Assessment: portfolios, project assessments, and self- and peer-assessment; spiritual growth is documented through narrative, non-graded feedback

Source: Authors' conceptual synthesis, 2026.

The three teacher roles accompany the cycle with different emphases. The facilitator role is most prominent in the exploring and evaluating phases, the digital ethics guide role in the evaluating and embodying phases, and the spiritual mentor role in the discerning and embodying phases. Nonetheless, all three roles operate throughout the cycle, which reflects the human-in-the-loop principle advocated in the literature on AI in education (Celik, 2023; Ouyang & Jiao, 2021). The cycle is iterative: the embodying phase raises new questions and experiences that open a new cycle of exploration, so that students' digital literacy, critical thinking, and spiritual maturity develop progressively. This iterative design is also intended to reduce the risk of cognitive offloading (Gerlich, 2025; Zhai et al., 2024), because AI outputs are positioned as the starting point for evaluation, discernment, and action rather than as the end point of learning; whether it actually does so is an

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

empirical question for future research.

To illustrate feasibility, one cycle can be implemented across two meetings within the regular CRE lesson hours of a junior or senior secondary school. In the first meeting, students explore a biblical passage with AI for about 20 minutes and evaluate the outputs in groups for about 50 minutes; in the second meeting, they engage in discerning dialogue and reflection for about 50 minutes and plan an embodying project or commitment for about 20 minutes, with the project carried out outside class. This allocation is illustrative and should be adapted to the school level, students' age, and access to technology. Assessment in the framework is primarily formative. Knowledge and skills, such as accuracy checking and the quality of interpretation, can be assessed with rubrics, whereas spiritual growth is not graded but documented through reflective journals, teacher-student conversations, and descriptive feedback, in recognition that faith formation cannot be reduced to scores.

The Christ-Centered EEDE Framework differs from existing approaches in several ways. Compared with AI literacy frameworks (Long & Magerko, 2020; Ng et al., 2021) and AI ethics frameworks (Akgun & Greenhow, 2022; Holmes et al., 2022), it adds theological discernment and spiritual mentoring as integral components. Compared with Intelligent-TPACK (Celik, 2023), it extends teachers' competence beyond technological, pedagogical, and ethical knowledge to include spiritual accompaniment. Compared with studies on AI in CRE that mainly map opportunities and threats (Pantan, 2023; Y. Waruwu, 2024) or emphasize spiritual values in general terms (Boiliu, 2024), it provides an operational learning cycle with defined teacher roles, activities, and assessment. Compared with Condrey's (2024) theological model of teachers' roles and Papakostas's (2025) analysis of AI in religious education, it translates theological and ethical considerations into a classroom-level framework. These distinctions constitute the novelty of the study, namely the integration of AI, digital literacy, critical thinking, and spiritual mentoring by CRE teachers into a single Christ-centered framework.

Theoretically, the framework contributes to the discourse on AI in religious education by positioning theological anthropology as the foundation of AI literacy and by showing how critical thinking and theological discernment complement each other. It also extends the human-in-the-loop principle by specifying that, in faith-based education, the human role includes spiritual mentoring and not merely technical oversight. Practically, the framework can guide CRE teachers in designing lesson plans that incorporate AI purposefully, assist schools in formulating policies on responsible AI use in CRE, and inform teacher education and professional development programs in strengthening the pedagogical, ethical, digital, and spiritual competencies of CRE teachers, in line with the needs identified by Lahope et al. (2024) and Santosa (2022). Since unequal access to technology remains a challenge (Y. Waruwu, 2024), the framework can also be applied flexibly through teacher-mediated AI demonstrations when students' access is limited or when students are below the minimum age for independent use. Within the national curriculum (Kurikulum Merdeka), the framework can be integrated into the CRE learning outcomes (*Capaian Pembelajaran Pendidikan Agama Kristen dan Budi Pekerti*), whose four elements, namely God at work, human beings and Christian values, the church and plural society, and nature and the environment, provide the content within which the cycle can be applied (Badan Standar, Kurikulum, dan Asesmen Pendidikan, 2025); for example, the element of human beings and Christian values can host lessons on the *imago Dei* and responsible AI use. The framework also supports the graduate profile dimensions of faith and piety toward God Almighty and critical reasoning set out in the national graduate competency standards (Kementerian Pendidikan Dasar dan Menengah, 2025).

This study has several limitations. First, the framework is conceptual and has not been empirically tested in classrooms. Second, the literature was limited to accessible Indonesian and English publications, and the rapid development of AI means that some findings may soon require updating. Third, several international studies were conducted in higher education or in other Christian and religious traditions, so their transferability to school-based CRE in Indonesia requires caution. Fourth, subscription-based databases were not searched directly, so some relevant international studies may have been missed. Fifth, the theological sources draw on Catholic, Protestant, and evangelical traditions, and the framework may need to be adapted to the diverse

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

confessional emphases of Indonesian churches. Future research is recommended to validate the framework through expert judgment, for example through a Delphi study or the content validity index involving CRE experts, theologians from different church traditions, and teachers; to develop instruments for the proposed indicators of AI literacy, critical thinking, and theological discernment in CRE; and to examine its implementation through design-based research, classroom action research, or mixed-methods studies at various school levels.

CONCLUSION

This study concludes that integrating artificial intelligence into Christian Religious Education is primarily a matter of reconstructing teachers' roles rather than adopting technology. Because artificial intelligence makes religious information abundant and instant, the distinctive task of Christian Religious Education shifts from supplying information to forming students who can verify, interpret, and live out what they learn, and this task can be fulfilled only when teachers act together as learning facilitators, spiritual mentors, and digital ethics guides.

The main contribution of this study is the Christ-Centered EEDE Framework, which unites artificial intelligence, digital literacy, critical thinking, and spiritual mentoring in a cycle of exploring, evaluating, discerning, and embodying anchored in the *imago Dei*, truth, love, and wisdom. Its novelty lies in distinguishing the evaluation of information from the theological discernment of meaning and in positioning spiritual mentoring as an integral part of the human role in artificial intelligence-based learning. Theoretically, the framework places theological anthropology at the foundation of artificial intelligence literacy; practically, it offers teachers, schools, and teacher education institutions a basis for designing age-appropriate and responsible artificial intelligence-based learning within the national curriculum.

Because the framework was developed through library research and conceptual analysis, its components remain propositions that have not yet been tested in practice, and part of the evidence on which it rests comes from higher education and from diverse church traditions. Future studies should validate the framework with experts and practitioners, develop instruments for its proposed indicators, and examine its implementation and impact across school levels and church contexts in Indonesia.

Funding

This research received no external funding.

Author Contributions

Yunardi Kristian Zega contributed to conceptualization, methodology, formal analysis, and writing, original draft. Andrea Elfata Ratulangi contributed to literature searching, data curation, validation, and writing, review and editing. Ryanto Adilang contributed to conceptual analysis and writing, review and editing. Stefanus Meo Nekin contributed to theological interpretation and writing, review and editing. Sharon Long Saging contributed to supervision, validation, and writing, review and editing. All authors reviewed and approved the final manuscript.

Conflict of Interest

The authors declare no conflict of interest.

REFERENCES

Akgun, S., & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI and Ethics, 2*(3), 431–440. https://doi.org/10.1007/s43681-021-00096-7

Alkitab Terjemahan Baru [The Holy Bible: New Translation]. (1974). Lembaga Alkitab Indonesia.

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Andrianti, S. (2018). Peran guru pendidikan agama Kristen sebagai fasilitator dalam pelaksanaan pembelajaran literasi [The role of Christian religious education teachers as facilitators in implementing literacy learning]. *Fidei: Jurnal Teologi Sistematika dan Praktika, 1*(2), 232–249. https://doi.org/10.34081/fidei.v1i2.13

Badan Pengkajian dan Penerapan Teknologi. (2020). *Strategi nasional kecerdasan artifisial Indonesia 2020–2045* [National strategy for artificial intelligence of Indonesia 2020–2045].

Badan Standar, Kurikulum, dan Asesmen Pendidikan. (2025). *Keputusan Kepala Badan Standar, Kurikulum, dan Asesmen Pendidikan Nomor 046/H/KR/2025 tentang capaian pembelajaran pada pendidikan anak usia dini, jenjang pendidikan dasar, dan jenjang pendidikan menengah* [Decree of the Head of the Agency for Standards, Curriculum, and Educational Assessment Number 046/H/KR/2025 on learning outcomes in early childhood, primary, and secondary education]. Kementerian Pendidikan Dasar dan Menengah.

Boiliu, N. I. (2024). Etika dan dilema spiritualitas di era artificial inteligent: Karya Roh Kudus bagi pendidikan kristiani dalam menghadapi tantangan teknologi modern [Ethics and spiritual dilemmas in the era of artificial intelligence: The work of the Holy Spirit for Christian education in facing the challenges of modern technology]. *KURIOS: Jurnal Teologi dan Pendidikan Agama Kristen, 10*(3), 662–671. https://doi.org/10.30995/kur.v10i3.1158

Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., Pham, P., Chong, S. W., & Siemens, G. (2024). A meta systematic review of artificial intelligence in higher education: A call for increased ethics, collaboration, and rigour. *International Journal of Educational Technology in Higher Education, 21*, Article 4. https://doi.org/10.1186/s41239-023-00436-z

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology, 18*(3), 328–352. https://doi.org/10.1080/14780887.2020.1769238

Celik, I. (2023). 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*, Article 107468. https://doi.org/10.1016/j.chb.2022.107468

Celik, I., Dindar, M., Muukkonen, H., & Järvelä, S. (2022). The promises and challenges of artificial intelligence for teachers: A systematic review of research. *TechTrends, 66*(4), 616–630. https://doi.org/10.1007/s11528-022-00715-y

Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE Access, 8*, 75264–75278. https://doi.org/10.1109/ACCESS.2020.2988510

Chrostowski, M., & Najda, A. J. (2025). ChatGPT as a modern tool for Bible teaching in confessional religious education: A German view. *Journal of Religious Education, 73*(1), 75–94. https://doi.org/10.1007/s40839-024-00244-1

Condrey, B. J. (2024). The Christian educator as prophet, priest, and king: Nurturing moral formation in a ChatGPT era. *International Journal of Christianity & Education, 28*(2), 198–218. https://doi.org/10.1177/20569971231196809

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Educational Technology in Higher Education, 20*, Article 22. https://doi.org/10.1186/s41239-023-00392-8

Dicastery for the Doctrine of the Faith & Dicastery for Culture and Education. (2025, January 28). *Antiqua et nova: Note on the relationship between artificial intelligence and human intelligence*. Holy See. https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_ddf_doc_20250128_antiqua-et-nova_en.html

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Dorobantu, M. (2022). Artificial intelligence as a testing ground for key theological questions. *Zygon: Journal of Religion and Science, 57*(4), 984–999. https://doi.org/10.1111/zygo.12831

Ennis, R. H. (2018). Critical thinking across the curriculum: A vision. *Topoi, 37*(1), 165–184. https://doi.org/10.1007/s11245-016-9401-4

Essel, H. B., Vlachopoulos, D., Essuman, A. B., & Amankwa, J. O. (2024). ChatGPT effects on cognitive skills of undergraduate students: Receiving instant responses from AI-based conversational large language models (LLMs). *Computers and Education: Artificial Intelligence, 6*, Article 100198. https://doi.org/10.1016/j.caeai.2023.100198

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction (The Delphi report)*. The California Academic Press. https://eric.ed.gov/?id=ED315423

Gerlich, M. (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies, 15*(1), Article 6. https://doi.org/10.3390/soc15010006

Groome, T. H. (2011). *Will there be faith? A new vision for educating and growing disciples*. HarperOne.

Gulo, R. P., & Tapilaha, S. R. (2024). Reforming Christian religious education: Integrating spirituality and critical reasoning in the digital era. *Didache: Journal of Christian Education, 5*(2), 105–123. https://doi.org/10.46445/djce.v5i2.837

Halawa, T. P., Brek, M., Rantung, D. A., & Naibaho, L. (2024). Berpikir kritis melalui metode mind mapping dalam pembelajaran pendidikan agama Kristen [Critical thinking through the mind mapping method in Christian religious education learning]. *Regula Fidei: Jurnal Pendidikan Agama Kristen, 9*(2), 190–201. https://christianeducation.id/e-journal/index.php/regulafidei/article/view/198

Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Buckingham Shum, S., Santos, O. C., Rodrigo, M. T., Cukurova, M., Bittencourt, I. I., & Koedinger, K. R. (2022). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education, 32*(3), 504–526. https://doi.org/10.1007/s40593-021-00239-1

Jaakkola, E. (2020). Designing conceptual articles: Four approaches. *AMS Review, 10*(1–2), 18–26. https://doi.org/10.1007/s13162-020-00161-0

Johnson, L. T. (1996). *Scripture & discernment: Decision making in the church* (Rev. ed.). Abingdon Press.

Karlau, S. A., & Rukua, I. S. (2023). Kompetensi guru pendidikan agama Kristen menyikapi post-truth pada era disrupsi teknologi informasi [The competence of Christian religious education teachers in responding to post-truth in the era of information technology disruption]. *Didache: Journal of Christian Education, 4*(1), 47–69. https://doi.org/10.46445/djce.v4i1.650

Kasneci, E., Seßler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günnemann, S., Hüllermeier, E., Krusche, S., Kutyniok, G., Michaeli, T., Nerdel, C., Pfeffer, J., Poquet, O., Sailer, M., Schmidt, A., Seidel, T., . . . Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences, 103*, Article 102274. https://doi.org/10.1016/j.lindif.2023.102274

Kementerian Pendidikan Dasar dan Menengah. (2025). *Peraturan Menteri Pendidikan Dasar dan Menengah Nomor 10 Tahun 2025 tentang standar kompetensi lulusan pada pendidikan anak usia dini, jenjang pendidikan dasar, dan jenjang pendidikan menengah* [Regulation of the Minister of Primary and Secondary Education Number 10 of 2025 on graduate competency standards in early childhood, primary, and secondary education].

Kim, J., Lee, H., & Cho, Y. H. (2022). Learning design to support student-AI collaboration: Perspectives of leading teachers for AI in education. *Education and Information Technologies, 27*(5), 6069–6104. https://doi.org/10.1007/s10639-021-10831-6

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Kristiani, K., & Widianing, O. J. (2026). Integrasi literasi digital dan teologi inkarnasional dalam pendidikan agama Kristen [Integrating digital literacy and incarnational theology in Christian religious education]. *DUNAMIS: Jurnal Teologi dan Pendidikan Kristiani, 11*(1), 69–80. https://doi.org/10.30648/dun.v11i1.2324

Kurata, L., Ayanwale, M. A., Molefi, R. R., & Sanni, T. (2025). Teaching religious studies with artificial intelligence: A qualitative analysis of Lesotho secondary schools teachers' perceptions. *International Journal of Educational Research Open, 8*, Article 100417. https://doi.org/10.1016/j.ijedro.2024.100417

Lahope, T., Hasibuan, N., Jenesa, A. G., Pandjaitan, T. O., & Laoli, S. (2024). Deskriptif analisis upaya peningkatan kompetensi profesional guru pendidikan agama Kristen di era Society 5.0 [A descriptive analysis of efforts to improve the professional competence of Christian religious education teachers in the Society 5.0 era]. *Sanctum Domine: Jurnal Teologi, 14*(1), 149–174. https://doi.org/10.46495/sdjt.v14i1.277

Lo, C. K. (2023). What is the impact of ChatGPT on education? A rapid review of the literature. *Education Sciences, 13*(4), Article 410. https://doi.org/10.3390/educsci13040410

Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (pp. 1–16). Association for Computing Machinery. https://doi.org/10.1145/3313831.3376727

Miao, F., & Holmes, W. (2023). *Guidance for generative AI in education and research*. UNESCO. https://doi.org/10.54675/EWZM9535

Miao, F., Holmes, W., Huang, R., & Zhang, H. (2021). *AI and education: Guidance for policy-makers*. UNESCO. https://doi.org/10.54675/PCSP7350

Miao, F., Shiohira, K., & Lao, N. (2024). *AI competency framework for students*. UNESCO. https://doi.org/10.54675/JKJB9835

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Newen, A., De Bruin, L., & Gallagher, S. (Eds.). (2018). *The Oxford handbook of 4E cognition*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780198735410.001.0001

Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence, 2*, Article 100041. https://doi.org/10.1016/j.caeai.2021.100041

Ouyang, F., & Jiao, P. (2021). Artificial intelligence in education: The three paradigms. *Computers and Education: Artificial Intelligence, 2*, Article 100020. https://doi.org/10.1016/j.caeai.2021.100020

Oviedo, L. (2022). Artificial intelligence and theology: Looking for a positive—but not uncritical—reception. *Zygon: Journal of Religion and Science, 57*(4), 938–952. https://doi.org/10.1111/zygo.12832

Pandie, R. D. Y. (2022). Literasi digital berbasis pendidikan kristiani sebagai sarana pembentukan karakter era disrupsi teknologi [Christian education-based digital literacy as a means of character formation in the era of technological disruption]. *Edukatif: Jurnal Ilmu Pendidikan, 4*(4), 5995–6002. https://doi.org/10.31004/edukatif.v4i4.2964

Pantan, F. (2023). ChatGPT dan artificial intelligence: Kekacauan atau kebangunan bagi pendidikan agama Kristen di era postmodern [ChatGPT and artificial intelligence: Chaos or revival for Christian religious education in the postmodern era]. *Diegesis: Jurnal Teologi, 8*(1), 108–120. https://doi.org/10.46933/DGS.vol8i1108-120

Papakostas, C. (2025). Artificial intelligence in religious education: Ethical, pedagogical, and theological perspectives. *Religions, 16*(5), Article 563. https://doi.org/10.3390/rel16050563

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Pemerintah Republik Indonesia. (2022). *Undang-Undang Republik Indonesia Nomor 27 Tahun 2022 tentang pelindungan data pribadi* [Law of the Republic of Indonesia Number 27 of 2022 on personal data protection]. Lembaran Negara Republik Indonesia Tahun 2022 Nomor 196.

Purba, S. (2022). Literasi digital: Sebuah upaya pelaku pendidikan agama Kristen dalam membangun integritas remaja gereja [Digital literacy: An effort by Christian religious education actors to build the integrity of church youth]. *Jurnal Shanan, 6*(2), 183–200. https://doi.org/10.33541/shanan.v6i2.4086

Rudolph, J., Tan, S., & Tan, S. (2023). ChatGPT: Bullshit spewer or the end of traditional assessments in higher education? *Journal of Applied Learning and Teaching, 6*(1), 342–363. https://doi.org/10.37074/jalt.2023.6.1.9

Santosa, M. (2022). Implementasi kecerdasan digital (digital quotient) dalam pelayanan pendidikan agama Kristen [The implementation of digital intelligence (digital quotient) in Christian religious education ministry]. *Jurnal Teologi Berita Hidup, 5*(1), 72–95. https://doi.org/10.38189/jtbh.v5i1.196

Sari, S. P., & Bermuli, J. E. (2021). Etika Kristen dalam pendidikan karakter dan moral siswa di era digital [Christian ethics in students' character and moral education in the digital era]. *Diligentia: Journal of Theology and Christian Education, 3*(1), 46–63. https://doi.org/10.19166/dil.v3i1.2782

Schuurman, D. C. (2019). Artificial intelligence: Discerning a Christian response. *Perspectives on Science and Christian Faith, 71*(2), 75–82.

Sidabutar, H., & Munthe, H. P. (2022). Artificial intelligence dan implikasinya terhadap tujuan pembelajaran pendidikan agama Kristen [Artificial intelligence and its implications for the learning objectives of Christian religious education]. *Jurnal Manajemen Pendidikan Kristen, 2*(2), 76–90. https://doi.org/10.51667/jmpk.v2i2.1078

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Tandana, E. A. (2023). Christian ethics toward artificial intelligence and its impacts on humanity. *Evangelikal: Jurnal Teologi Injili dan Pembinaan Warga Jemaat, 7*(2), 89–100. https://doi.org/10.46445/ejti.v7i2.595

Tari, E., & Hutapea, R. H. (2020). Peran guru dalam pengembangan peserta didik di era digital [The role of teachers in developing students in the digital era]. *Kharisma: Jurnal Ilmiah Teologi, 1*(1), 1–13. https://doi.org/10.54553/kharisma.v1i1.1

Topayung, S. L. (2025). Pemuridan digital: Menelusuri peran guru pendidikan agama Kristen sebagai pemimpin spiritual di era disrupsi teknologi [Digital discipleship: Exploring the role of Christian religious education teachers as spiritual leaders in the era of technological disruption]. *Jurnal Luxnos, 11*(1), 99–117. https://doi.org/10.47304/spd5wx73

Tran, K., & Nguyen, T. (2021). Preliminary research on the social attitudes toward AI's involvement in Christian education in Vietnam: Promoting AI technology for religious education. *Religions, 12*(3), Article 208. https://doi.org/10.3390/rel12030208

Tsuria, R., & Tsuria, Y. (2024). Artificial intelligence's understanding of religion: Investigating the moralistic approaches presented by generative artificial intelligence tools. *Religions, 15*(3), Article 375. https://doi.org/10.3390/rel15030375

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). *DigComp 2.2: The digital competence framework for citizens: With new examples of knowledge, skills and attitudes*. Publications Office of the European Union. https://doi.org/10.2760/115376

Waruwu, E. W., & Lawalata, M. (2024). Membangun masyarakat digital yang beretika: Mengintegrasikan nilai-nilai Kristen di era teknologi digital 5.0 [Building an ethical digital society: Integrating Christian values in the era of digital technology 5.0]. *Didache: Journal of Christian Education, 5*(1), 22–46. https://doi.org/10.46445/djce.v5i1.747

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)

Waruwu, Y. (2024). Pendidikan agama Kristen dalam era AI: Menggunakan kecerdasan buatan untuk personalisasi pembelajaran spiritual [Christian religious education in the AI era: Using artificial intelligence to personalize spiritual learning]. *Jurnal Abdiel: Khazanah Pemikiran Teologi, Pendidikan Agama Kristen dan Musik Gereja, 8*(2), 151–165. https://doi.org/10.37368/ja.v8i2.786

Wyatt, J., & Williams, S. N. (Eds.). (2021). *The robot will see you now: Artificial intelligence and the Christian faith*. SPCK.

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (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*, Article 39. https://doi.org/10.1186/s41239-019-0171-0

Zhai, C., Wibowo, S., & Li, L. D. (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: A systematic review. *Smart Learning Environments, 11*, Article 28. https://doi.org/10.1186/s40561-024-00316-7

Copyright © 2027: The Authors. Published by JUILMU, ISSN: 3031-769X (Online)