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AI in the Academe: Opportunities and Challenges for Religious Education

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ABSTRACT

The coming of artificial intelligence (AI), dramatically signaled by the release of ChatGPT 3.5 in November 2022, sparked varied reactions and questions in various sectors and industries, including the field of education. Prior to this, AI technology has been

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gaining ground with its various applications, yet it still managed to take many by surprise. After the initial panic and apprehension about the use of these increasingly powerful technologies, discussions have begun as to how to effectively manage the threats and maximize the affordances brought by these rapidly emerging developments. The growing discourse and literature on this subject confirm the relevance and urgency of this issue today. Gathering the concerns and insights from these ongoing conversations, this paper aims to explore the challenges and opportunities brought by AI to education in general and to religious education in particular, with the aim of naming potential risks and identifying possible areas that can be harnessed by religious educators today.

Keywords: *artificial intelligence, AI in education, religious education, online learning, educational technology*

1. Introduction

Long the subject of imagination as evidenced in fictional literature and even film, the actual development of artificial intelligence (AI) began in the 1940s and has by now gained more comprehensive access, greater sophistication, and broader application. The release of the generative pre-trained transformer ChatGPT 3.5 in November 2022 followed shortly by its more advanced premium version, ChatGPT4 in March 2023, again triggered public awareness and interest in AI. At the same time, the recent popularity of chatbots like ChatGPT and similar applications also generated questions and concerns about the opportunities and challenges posed by these fast-evolving digital technologies in various fields of human endeavor.

Addressing the science and technology summit "Minerva Dialogues" held at the Vatican on March 27, 2023, Pope Francis (2023) asserted that the ongoing discussion on the responsible use of this technology is "open to religious values," including ethical and

educational concerns. Even more recently, in his message for the 57th World Day of Peace, he called attention to the "ethical dimension" of the use of these technologies, underlining that "the challenges it poses are technical, but also anthropological, *educational*, social and political" (Francis 2024, 2). He further emphasized that the development of AI ethics, or the so-called "algor-ethics," is a vital arena where "educational institutions and decision-makers have an essential role to play" (6).

Taking its cue from the Pope's intuition, this study aims to explore the interface of AI with education in general and religious education in particular and how educators today, especially religious educators, can respond to these emerging developments without wasting their potential or ignoring their danger. It begins by discussing the positive opportunities brought by AI that are now being piloted or utilized in the educational landscape. It then proceeds by tackling the threats that AI brings to the table. Afterwards, it focuses more specifically on religious education and the particular challenges and opportunities that AI presents to religious educators.

2. AI and Education

Throughout the years, technology has paved the way for many improvements in society, leaving its imprint of advancement in almost all aspects of human operations. One of the fields that technology has significantly improved, especially in recent years, is education (Raja and Nagasubramani 2018; Ng 2015).

Like the rest of society marked by rapid innovation and the omnipresence of technology, education today can be aptly described as VUCA: volatile, uncertain, complex and ambiguous. Endless technological advancements often outstrip our capacity to adapt, with new developments already on our doorstep even before we have fully learned and adjusted to the ones on hand. Different learning management systems, methodologies, and techniques enhanced by technology are continually developed and utilized by learning institutions to innovate the learning experience. With smartphones and tablets taking over the place of desktop and laptop computers, teaching and learning

can now literally happen at one's fingertips, anywhere and anytime, without being confined to a physical campus or classroom.

During the recent pandemic, online education became even more widespread (Xie et al. 2020). When students could not access schools because of the lockdowns, gadgets became their learning avenue and the learning management systems available were utilized to make learning possible in spite of the limitations imposed by the crisis. With the recent resurgence of AI in the last two years, new possibilities also emerged in the educational horizon, with their capacity to enhance both teaching and learning (Holmes and Tuomi 2022; Vincent-Lancrin and Van der Vlies 2020). The usual panic and aversion at the beginning slowly gave way to various efforts to adapt and integrate AI into the learning landscape (Hutson et al. 2022; Grassini 2023; Irfan et al. 2023). This can be likened to the apprehension and reticence with which Google and other search engines in their early days were initially met by educators who feared that their use in educational settings would compromise rather than complement learning. These technologies, however, do not require the prior permission of educators (Miranda 2023) who have no choice but to contend with them or be left behind.

2.1. Opportunities for Education

According to the UNESCO website (2023), "Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and accelerate progress towards SDG 4." Thus, it is regarded as a tool for educational advancement, in line with the United Nations' Sustainable Development Goals (SDGs). SDG 4 aims to "ensure inclusive and equitable quality education and promotes lifelong learning opportunities for all."

AI has the potential to revolutionize education in many ways, making learning more personalized, efficient, and accessible. Adaptive learning systems that use AI can personalize learning and tailor educational content to the individual needs and learning styles of students, ensuring that each one receives materials and assignments that match their interests, abilities, and pace (Molenaar 2022; Furini et

al. 2022; Draxler et al. 2023; Chassignol et al. 2019). AI-powered tutors can directly provide students with immediate feedback and assistance, while helping them with homework, assignments, and review (Kim and Kim 2020; Yang and Zhang 2019). AI translation tools can also break language barriers, allowing students to access educational content in their native language or communicate with peers from different language backgrounds (Baidoo-Anu and Ansah 2020). For students struggling with disabilities, AI can offer real-time text-to-speech, speech-to-text, and other assistive technologies (Zdravkova 2022; Zdravkova et al. 2022).

In "ChatGPT and AI in Higher Education: Quick Start Guide," UNESCO itself offers practical guidance for the use of ChatGPT and other emerging AI-based applications, tacitly acknowledging that these technologies must not be dismissed. According to UNESCO (2023b), this tool can be helpful if correctly applied in conjunction with other forms of AI in order to improve not only teaching and learning but other academic functions like research, administration, and community engagement. To this end, ChatGPT itself can be used as a standalone tool or integrated with and incorporated into other systems and platforms utilized by HEIs.

For instance, ChatGPT can provide both teachers and students with basic information, ideas, and feedback on their work. Moreover, ChatGPT has proven beneficial in research-related activities, like filling out technical sections of grant applications and predicting if publications will be accepted. Moreover, ChatGPT can help in administrative tasks like social media management, messaging services, and website integration to increase efficiency in academic institutions, making some services available 24/7, and across several platforms (UNESCO 2023b). Also, ChatGPT can be harnessed in planning extension projects like the design of community involvement programs where it could propose targeted methods designed to improve the community's well-being that take into account their unique qualities and particular situation like geography, location, needs, and demographics. ChatGPT, of course, is but one of the many AI tools that are now at the disposal of educators and learners alike.

AI can also assist teachers in various ways to enhance their teaching methods and improve overall classroom outcomes. It can automate administrative tasks such as grading, scheduling, and record-keeping, effectively reducing their workload and allowing them to focus on more essential and impactful teaching and mentoring (Ahmad et al. 2022; Chen et al. 2020; Bryant et al. 2020). This would be akin to providing them with teaching assistants at a much lower cost or no cost at all. AI-based plagiarism detection tools can also help educators in detecting and addressing instances of academic dishonesty (Santra and Majhi 2023; Jiffriya 2021). Moreover, AI analytics can help teachers or counselors identify students who may be at risk early on by monitoring their progress and behavior, enabling timely and effective intervention (Lokesh et al. 2022). AI can likewise assist researchers in analyzing educational data to identify trends and generate insights on how to improve current educational practices and curriculum design (Alonso and Casalino 2019).

2.2. Challenges for Education

As the available technology continues to advance, the role that AI plays in education is only likely to expand, providing even more tools and methodologies to enhance both the learning experience for students and teaching experience for educators. Conversely, while AI technology holds great promise for transforming education, it also presents a number of concerning challenges that need to be confronted and addressed.

These challenges include equity and access since AI-powered educational tools often require access to technology and the Internet. This can exacerbate educational disparities as students without access may be left behind (Roscoe et al. 2022; Walsh et al. 2022; Yu 2020). The problem includes not only low-income students but rural students, students with disabilities, students in minority and underserved communities, as well as elderly students, among others. This concern about equity and access is also true on the institutional and national level since integrating AI in education can be expensive. Smaller schools or developing countries with limited resources may struggle to adopt these technologies (Carter et al. 2020) and keep pace with other learning institutions and nations. This serious problem, sometimes

referred to in general as the "digital divide" or more specifically to AI as the "algorithmic divide" includes inequities in "awareness, access, affordability, availability and adaptability" (Yu 2020, 331). Bridging this serious divide requires concerted efforts to provide equitable access to technology and internet connectivity for all students, regardless of their socioeconomic background or geographic location.

Another important concern is data privacy since AI systems collect and analyze large amounts of data about the students. Ensuring the privacy and security of this data, which includes very personal and sensitive data, is crucial to protect students from potential breaches or misuse (Huang 2023). Some AI algorithms can also perpetuate and amplify pre-existing biases present in the data they are processing (Ferrer et al. 2021; Baker and Hawn 2021; Silberg and Manyika 2019). This algorithmic bias can lead to unfair outcomes in areas like grading, admissions, and personalized learning. Similarly, AI algorithms may not always adequately account for and address cultural and language differences, potentially disadvantaging certain groups of students while at the same time privileging others (Salas-Pilco et al. 2022).

The use of AI raises crucial ethical questions, such as who will be responsible if an AI tutor provides incorrect information or if AI is used to monitor students' behavior without their awareness or consent. Over-reliance on AI tools may also lead to failure on the part of students in developing critical thinking and problem-solving skills, and even basic skills such as writing or computing (Malinka et al. 2023; Tlili et al. 2023; Yu 2023; Lim et al. 2023; Su and Yang 2023). Despite the availability of technological tools, students still need to acquire essential skills and other basic knowledge which are foundational, not only in their professional or vocational practice but in their life itself. Moreover, generative AI can produce content that may not always be accurate or reliable. Students who have not developed capacity to discern right information from wrong might use such content without verifying its accuracy, leading to misinformation that sometimes comes with disastrous consequences.

At the same time, there are important moral and ethical issues at stake such as honesty and integrity (Cotton et al. 2023; Mohammadkarimi 2023). For instance, the availability of AI tools can encourage

plagiarism if students use them to mechanically generate essays or assignments without proper attribution or original thought. This seriously compromises the learning process since if students learn by doing, allowing the AI to do their work for them eliminates the process by which they acquire essential knowledge and skills. Furthermore, while AI technology can personalize learning, there is also a risk that it may lead to a more isolated and depersonalized learning experience (Elmessiry 2023), further reducing interpersonal connections with teachers and peers and promoting an individualistic culture.

On the part of educators, many still need to be trained as to how to make use of AI tools in an effective manner (Baidoo-Anu and Ansah 2020; Chen et al. 2020). At the moment, not all teachers have the necessary skills or knowledge to integrate AI into their teaching methods. AI can also change the way curricula and program offerings are designed and delivered. Thus, educators and institutions need to adapt and incorporate AI into their teaching methods (Kim and Cho 2022) while those who could not do so run the risk of being left behind. Moreover, there are looming concerns that AI could later replace certain teaching and administrative jobs, eventually leading to job insecurity for educators as well as other school staff (Yang et al. 2021).

While AI can be a valuable tool for teachers, it should complement, not replace, the educational experience and other important aspects of teaching like mentorship, emotional support, and the cultivation of critical-thinking, problem-solving as well as relational skills. Effective integration of AI in education requires ongoing training and collaboration between educators and technology experts. It can be a truly powerful tool to enrich learning and educational experiences, but if not used mindfully or responsibly, there are also many ways by which it could actually impair learning and end up harming the learners and educators.

Addressing these challenges requires a thoughtful and collaborative approach that includes educators, policymakers, researchers, technologists, and all stakeholders in the process (Holmes and Tuomi 2022). This process involves a comprehensive framework that carefully considers ethical, privacy, and equity issues and ensures the continuous superintendence, monitoring, and evaluation of AI systems

in education in order to guarantee that they will benefit all (Chan 2023; Owoc et al. 2019; Hwang et al. 2020).

3. AI and Religious Education

Addressing the participants in the most recent "Minerva Dialogues," a high-level annual meeting organized by the Catholic Church's Dicastery for Culture and Education, that brought together scientists, engineers, business leaders, lawyers and philosophers in dialogue with Church officials, theologians and ethicists held on March 27, 2023 at the Vatican, Pope Francis lauded the benefits of technology "as evidence of the creativity of human beings and the nobility of their vocation to participate responsibly in God's creative action" (Francis 2023). In the same address, he expressed his hope that "the development of artificial intelligence and machine learning has the potential to contribute in a positive way to the future of humanity; we cannot dismiss it. At the same time, I am certain that this potential will be realized *only if* [emphasis added] there is a constant and consistent commitment on the part of those developing these technologies to act ethically and responsibly" (Francis 2023). Thus, the Pope pointed to an ethical and responsible attitude as indispensable to the sound use of these advancements and it is here that education, particularly religious education, plays a very important role.

Prior to this, the Vatican's Pontifical Academy for Life, organized a workshop on the theme "The 'Good' Algorithm? Artificial Intelligence, Ethics, Law, Health" on February 26-28, 2020. This was attended not only by Church leaders, theologians, and philosophers but also by scientists, tech-entrepreneurs and other stakeholders. At the end of the workshop, the Pontifical Academy for Life, together with Microsoft, IBM, the United Nations Food and Agriculture Organization (FAO), and the Italian government, signed the "Rome Call for AI Ethics." This pact aims to advance ethical standards in the realm of AI and promote a shared sense of responsibility among governments, institutions, and organizations who have committed to it. Archbishop Vincenzo Paglia, the President of the Pontifical Academy, in presenting the Rome Call to the public, emphasized that it is not an official document of the Pontifical Academy alone but rather a set of

commitments shared by the stakeholders (Paglia 2020). The Rome Call provides guidelines for an ethical approach to Artificial Intelligence and contains important commitments centered around three key aspects: ethics, law, and education. In a prepared statement for the occasion delivered by Archbishop Paglia, Pope Francis re-emphasized the importance of "a broader educational effort" (Francis 2020) to ensure the correct and ethical use of these emerging technologies.

Other religious leaders also share the Pope's concern about AI and its growing presence and influence in human affairs. In January 2023, representatives from the three Abrahamic faiths signed the Rome Call at the conclusion of an event organized by the RenAIssance Foundation, titled, "AI Ethics: An Abrahamic Commitment to the Rome Call." Sheikh Al Mahfoudh Bin Bayyah, Secretary General of the Abu Dhabi Peace Forum, represented Islam; Chief Rabbi Eliezer Simha Weisz, member of the Council of the Chief Rabbinate of Israel, represented Judaism; and Archbishop Vincenzo Paglia, President of the Pontifical Academy for Life and the RenAIssance Foundation, represented Christianity in this historic event. The united front of these three big world religions represents an important milestone in the commitment of religions to ensuring a positive future for AI.

As highlighted by the Pope and the Rome Call, education plays a crucial part in the shaping of AI technology. Thus, not only do we have a question now of the role of AI in education but also of the role of education in AI and what all educators, including religious educators, can bring to its continuing development and integration, especially in the face of the threats and challenges that come with it not only to education but to society at large. While this educational effort is expressly "broader" in that it encompasses and engages the contribution of all sectors involved, it also falls in a special way on educators and religious educators who can focus on it in a more direct and targeted way. As critical stakeholders in the development, implementation, and responsible use of AI technology, their active involvement is essential to harness the benefits of AI while addressing ethical concerns and ensuring that technology enhances human life, rather than corrupts it.

In terms of advantages, the benefits brought by AI to religious education are actually more or less the same advantages that it brings to education in general. However, religious educators can only benefit and maximize these opportunities if they are willing to explore their potential in a proactive manner and ready to participate in their development as a real complement to traditional ways of teaching and learning. Otherwise, they are prone to being outpaced as the technology continues to advance very quickly. In this regard, the different religions have launched various initiatives.

For example, madrasas or Muslim schools in Indonesia are already beginning to adopt AI based digital technology not only for instruction but also for administration. It is certainly an advantage that in their country, schools that participate in this expanding digitalization program are assisted financially by the government. In 2019, the Muslims also opened Mohamed bin Zayed University of Artificial Intelligence in Abu Dhabi as a global center of study and research about these technologies (Hamruni and Suwartini 2022). The openness of religious schools not only allows them to respond to and harness technology but also to put their vast resources at the service of its development.

Being grounded in tradition does not entail rejecting innovation but profiting from it and maximizing it as a means of promoting faith. In this regard, there are laudable efforts on the part of religious leaders and educators to seize the opportunity by studying the technology and developing it themselves to aid in their religious endeavors. For instance, we have the AI-based Catholic application called *Magisterium AI* that shows great potential for study and research due to its maintenance and management by the Church's leaders and educators themselves (Giangravé 2023; Pentin 2023). Because of this guidance, the application's content becomes more accurate and reliable. As such, users can utilize and consult it more confidently, without worrying about its veracity or accuracy, which is a very serious concern especially in doctrinal and moral questions. In Hinduism, we find a corresponding initiative as they use AI to systematize and organize the study of sacred texts such as the *Upanishads* and the *Bhagavad Gita* (Chandra and Ranjan 2022).

On the other hand, there are also worrisome incidents like unauthorized chatbots usurping and interpreting sacred Hindu texts to condone violence as people turn from seeking the guidance of live gurus to consulting online AI-powered gurus and even an AI app that even attempts to mimic the voice of the god, Krishna (Shivji 2023). These alternative and perhaps even more accessible and influential channels of religious education certainly merit the attention not only of religious leaders but even of mainstream religious educators who need to warn their students and train them to be critical in their engagement with online religion. Otherwise, the democratized access to religious resources and the flattening of religious authority that AI brings may lead to the erosion of doctrine and the corruption of moral beliefs.

Even the use of AI in the production of religious icons and images that play a crucial role in worship and religious education needs to be monitored as images depicting religious figures are beginning to circulate that exhibit deformities like missing fingers or contain inaccurate depictions that may lead to serious doctrinal issues later on (White 2023; Albia et al. 2023). In this case, educators themselves need to be intelligent and discerning when using AI-generated materials and presenting them to their students.

As we can see, there is clearly a need for religious leaders and educators to be involved, not only in the adoption and use of these fast-changing technologies but also in their guidance and development. On top of this, there is a unique opportunity that the current situation presents to religious educators who have the expertise and experience needed to address the need for AI Ethics in a more direct and focused way (Holmes et al. 2021). As most religions possess established ethical principles and moral codes, they can use this to guide developers and policymakers so that AI technologies align with ethical values. Part of this is integrating "algorethics" or "the field of ethics that focuses on the development and deployment of algorithms" (Wagle 2023) into the general curriculum, starting with a basic idea of how AI and algorithms function so that students will have a working grasp of how these technologies more or less operate (Benanti 2023). A few of the ethical concerns that have already been raised include human dignity and rights (Miao et al. 2021; Berendt et al. 2020), digital divide and social

inequality (Qazi et al. 2020) and the loss of human contact (Guilherme 2019). The different world religions have much to contribute to these discussions as they bring the insights and perspectives of their own traditions into the conversation. Their universities, research centers, scholars and other resources can also be put at the service of this important area of research, dialogue, and cooperation.

Aside from this, world religions have a wealth of wisdom which can be applied towards the ethical use of AI. For instance, the Buddhist vow or commitment to eliminate suffering and promote the wellbeing of people can translate into a principle of non-maleficence and beneficence in AI use and development (Hongladarom 2021; Dalai Lama and Cutler 2020). Key Buddhist doctrines like impermanence (Batchelor 2008), compassion (Ho et al. 2021) and non-attachment (Ashcraft and Calvert 2023) can be adopted as foundational principles in the use of AI in education. The doctrine of impermanence, for example, can form the basis of an adaptive learning approach while personalized curricula, made possible by algorithms that analyze student performance, can in turn reflect the ephemeral and lifelong nature of knowledge acquisition (Kabudi et al. 2021). The idea of non-attachment can likewise be applied in the school context as learning liberation, encouraging students to approach knowledge openly and without prejudices (Ashcraft and Calvert 2023). Thus, students and educators will constantly strive to learn new things and gain new wisdom. Research then becomes an essential skill for students and educators, immersing them in a variety of vantages and opinions as they learn to give up rigid points of view and develop critical thinking, epistemic humility, and cognitive adaptability (Whitehead et al. 2018). We can see here that from Buddhism alone, there is a vast wealth of wisdom that can be channeled to the aid of AI for its humane and ethical use and development.

Meanwhile, as educators are freed by technology such as automated grading schemes and AI-powered feedback mechanisms from administrative tasks, teachers can now concentrate on promoting students' all-around development and fostering more interpersonal contact and collaboration in the classroom (Winkler and Soellner 2018). Religious practices like meditation and mindfulness, common to many religions, can also help in the cultivation of humanity in the

face of prolonged exposure to gadgets (Behan 2020; Khanna et al. 2023). They can be a source of strength and support for students and educators, and a quiet but effective way of passing on important moral and spiritual values. At the same time, reimagining and innovating traditional practices like the "digital Sabbath" can help avert dangers like fatigue and burnout and promote the overall health and wellness of both teachers and learners as they engage in online learning.

In an even more direct way, religions can be at the forefront of advocating important universal values and principles like human dignity to guide the integration of technology and education. The Catholic Church's Congregation for Catholic Education, renamed as the Dicastery for Culture and Education, for instance, often emphasizes the need for human contact and interpersonal relationship in technology-assisted education (Congregation for Catholic Education 2020 and 2021). This is in line with the Pope's vision of every academic institution as a true "community of study, research and formation" (Francis 2017) and not just a place for knowledge and skills acquisition. Because of their sensitivity and attention to these matters, religious leaders and educators can help to ensure that these concerns are not forgotten amid the rapid changes brought about by technological advancements.

Finally, religions can also make use of their moral and social platform to highlight specific ethical issues, call out inequities, warn about dangers, and rally for just practices such as providing equitable access for disadvantaged sectors, as embodied for example in the Rome Call. By doing so, they will help ensure that AI is developed and used in ways that respect human dignity, promote the common good, and even protect the planet for the benefit of coming generations. To this end, the increasing collaboration between the world's religions can be harnessed in an interreligious endeavor to help in safeguarding a wholesome and sustainable future for everyone. Interfaith dialogue and cooperation can also gather diverse religious perspectives to discuss ethical and moral considerations related to AI. This dialogue can help identify values and principles common to all that can guide the continuing development of this technology. Ultimately, religions and religious educators can serve as an ethical and moral compass for

the development of AI, contributing to the creation of AI systems that align with universal human values and principles.

4. Conclusion

Now that the dust has begun to settle after the initial anxiety and apprehension brought by the coming of AI to society in general and education in particular, all educators can more calmly assess the advantages and disadvantages that these emerging technologies bring. As with past technological advancements, there is no way but forward and no other way to go but for educators to find ways not only to adapt to but to take full advantage of this technology. This calls for a careful, comprehensive, and collaborative effort that involves not only educators, school administrators, and students but all stakeholders.

Moreover, religions need to adopt a proactive stance and be willing to invest their time, effort and resources to take part in the guidance and development of AI technologies, not only for the sake of their own religious interests but for the common good of all humanity. On the part of religious educators, the current situation offers a unique chance to contribute significantly, especially in the development of "Ethics in AI" in the face of the moral and ethical questions, issues, and challenges that come with it.

In this regard, religions can also cooperate with each other and with other stakeholders as they bring the wealth of their respective traditions, including their doctrines, principles, and practices to the table, while pointing out issues and advocating for important concerns, most especially on behalf of the voiceless and marginalized. Religious educators can in turn exercise their crucial role and make the most of this golden opportunity, not only taking advantage of the benefits of AI but also participating in its continuing development and integration.

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