Factors Impacting The Readiness, Acceptance, and Adoption of A.I.'s Involvement in Religious Education: Result Across Generations and Religious Orientation in Vietnam.

Khoa Tran [1], Tuyet Nguyen [2]

[1] Legal Studies Department, New York University Abu Dhabi, Abu Dhabi, UAE

[2] Nguyen Chi Thanh Gifted High School, Dak Nong, Vietnam

Coresspondence:

Khoa Tran

khoa.tran@nyu.edu

Abstract:

Artificial Intelligence innovations, such as chatbots and specialized education suggestion tools, provide potential interactive and on-demand pedagogical engagement between non-Christians and Christians with Christianity. However, there is little empirical research on the readiness, acceptance, and adoption of A.I.'s involvement in religious education in a secular state, such as Vietnam. This research addresses the literature gap by providing an entrepreneurial analysis and customer perspectives on the ideas of A.I.'s involvement in religious education. Specifically, the study explores whether the Vietnamese across different ages and religious orientations accept and have enough skills to adopt A.I.'s religious education innovation. The interview sample is 32 participants, selected based on their religious orientation (Christians & Non-Christians) and age (Generation X, Generation Y & Generation Z). Most respondents are open to A.I. application in religious education except for the Church's personnel. However, only gen Z generations are fully prepared to adopt this innovation. Theoretically, the research customizes the Unified Theory of Acceptance and Use of Technology model into religious innovation context. Practically, this

research acts as market research on the demand for A.I.'s religious innovation in Vietnam, an insight for future religious tech entrepreneurs.

Keywords: Age, Artificial intelligence, Christianity, Religion, Religious Orientation, Unified Theory of Acceptance and Use of Technology

Introduction:

From the industrial and entrepreneurial perspective, the application of technological advancements, especially Artificial Intelligence (A.I.), has proliferated. Autonomous vehicles, playing games, virtual assistants, and search engines are some epitomes of A.I. in real life. A.I. has progressed to the point where it plays a crucial role in virtually every sector of today's modern world (Dino and Ioanna 2020). Not only the economic sectors but also the education industry is reaping the benefits of the A.I. trend. To provide better services to learners, mainstream education from primary, secondary to higher educational institutions has increasingly shifted to A.I. usage. AI-based assistants save time and effort in educational administration by processing student details, stimulating finance management, and handling grading. With users' customization, an education system powered by A.I. personalized learning experience. They can get access to studying guidelines that are designed suitably for their own needs. Students also no longer need to request hard copy textbooks but portable paperless materials (Knox 2020; Holmes, Bialik, and Fadel 2019). According to Global Market Insight, A.I. in Education (AIED) size worthed over 400 million USD in 2017 and will grow at a CAGR of more than 45% from 2018 to 2024 (Ankita and Preeti 2018). These practical applications of AIED and statistically significant growth of this sector provide ample opportunities for business development and innovation.

From the academic perspective, A.I. has exerted significant impacts on aspects from private to social and political lives (Dino and Ioanna 2020), hence widespread attention from scholars. On the one hand, many studies related to the economy highlight A.I.'s importance in facilitating innovation, improving productivity, output, and the labor demand. On the other hand, other research focuses on the problems of the increasing unemployment rate, surveillance, and encoded and systemic biases(Clifton, Glasmeier, and Gray 2020). A.I. technology's development is believed to lead humans to come to an important crossroads: A.I. is able to generate or destroy jobs; give citizens more controls or deprive them of their autonomy and privacy; promote a digitally interconnected world or inflict people on the systemic failures' risk. In terms of the impacts of A.I.'s application on religion, disputes also exist. Some papers speculate that machines with state-of-the-art A.I. have the potential to become objects of worship (Midson 2018; Geraci 2013). This is because if A.I. can conduct medical surgeons to cure fatal or chronic diseases, understand human behaviors to provide timely services and other activities to satisfy people's needs, there arises a religious movement that idolizes and worships A.I. One example is Anthony Levandowski's Way of the Future Church, which claimed the spotlights from multiple media channels (Kif and Alexei 2019).

By contrast, how humans apply AI to reinforce orthodox religions is still insufficiently researched. For example, the research on AIED on religions concentrates on European and Islamics' theology, creating a regional and cultural gap in AIED analysis. Moreover, global citizens have increasingly familiarized themselves with the digitally driven world. However, as the spread of religious information has hitherto entirely depended on vicars and priests' preaching, religious education is still unpopular among people. Considerable research indicates that using AI in this process can promote the awareness of religion among the congregation and give agnostics more

insights (Syarif 2020; Alemi et al. 2020). However, there is currently no research on which factors influence the technological readiness, acceptance, and adoption of potential users in the AIED context (Midson 2018).

These literature gaps and economic incentives motivate the researchers to investigate AIED in the context of Vietnam- a developing and secular country. In this paper, the authors will explore the level of readiness, acceptance, and adoption to use AI-integrated technologies in religious practices in Vietnam. This research aims to serve technological service providers interested in building AI-driven devices such as applications, websites, or chatbot. Besides, church leaders, missionaries, and people responsible for teaching religions or spreading the gospel also benefit from this research. When they are acknowledged about the extent to which Christians and non-Christians accept and are willing to use these technologies, they will come up with measures to utilize this approach effectively. Since there is no formal scale to measure the readiness, acceptance, and adoption of people towards AI's involvement in religious education, this research hopes to set the foundation for future research to build grounded theory by interpretive research from contextualizing Unified Theory of Acceptance and Use of Technology (UTAUT) 's construct into the religious education industry. Additionally, this research explores whether age generation and religious orientation have effects on potential users' decisions.

The paper includes five sections. First, the authors deliver some background information that readers should know to understand the following sections fully. The paper then describes the methodologies adopted, followed by the results brought about by analyzing data. Subsequently, we will discuss the contributions of this research in religious and technological theory as well as its practical application in real life. Finally, the authors will make suggestions for future research.

Literature review:

2.1 The roles, benefits, and challenges of implementing Artificial Intelligence on Education

Firstly, the research will present the roles, benefits, and challenges of implementing Artificial Intelligence in Education (AIED) based on the previous literature, highlighting the rationale behind this research and the expected contribution to the A.I. and education field. Normally, an 'intelligent' system can 'learn' from the data to formulate new knowledge and actions. Artificial Intelligence' (A.I.) is "the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings." This technology employs statistical-analytic (algorithmic) to harvest, structure, and analyze data sets computationally to spot trends, patterns for making predictions and decisions (Berendt, Littlejohn, and Blakemore 2020). According to computational theory, the social, psychological, and behavioral data allows the A.I. system to make more informed decisions about individual and new cases in education. Artificial Intelligence in Education's application and benefits are highlighted based on theoretical research and practical business solutions.

Based on theoretical research, Artificial Intelligence's benefits in education are summarized in more personalized, flexible, inclusive, and engaging learning (Berendt, Littlejohn, and Blakemore 2020). In personalized and flexible learning, many A.I. researchers collect learners' choice and behavioral data to enhance learning experiences. These examples are Intelligent Tutoring (Roll, Russell, and Gašević 2018), predicting each student's grades to help teachers develop remedial actions or tailor career opportunities based on academic performance Berendt et al. 2017). On flexible and inclusive, (Ossiannilsson 2019) believes that it is not a challenge to find quality courses to learn in the era of the massive open online courses (MOOC); the challenges are how to navigate between the abundance of similar courses. The author suggests artificial

intelligence as a solution because it can tailor learners' own goals and flex their course designs to align with learners' personal goals.

From a practical perspective, according to the Center for Curriculum Redesign summary of past journal papers and conferences, institutions and schools are researching and applying A.I. into mainstream curriculums across the world, aiming to develop effective pedagogical practices for teachers and knowledge acquisitions for students. Based on this summary, the AIED applications can be categorized into (1) personalized education applications, (2) student writing analysis applications, (3) educational chatbots, and (4) AI-facilitated student/tutor matching system (Holmes, Bialik, and Fadel 2019). These educational practices have been successfully employed worldwide, promoting an interactive and cross-cultural education. In primary and high school education, for example, the 'A.I. Class Director's system can pair primary school children with teachers from English-speaking countries based on trained data from live video feeds and voice recordings. Another application is Squirrel A.I.'s adaptive learning system using data on students' academic strengths and weaknesses to calculate personalized pathways (Knox 2020). Artificial Intelligence is also used in specialized and higher educational training, such as medical training and legal training. For example, thanks to technological advancement and affordability, nurse education is incorporating clinical simulation education, based on artificial intelligence (A.I.) and virtual reality (V.R.), into their daily education practices (Rourke 2020; Foronda et al. 2020). In the current publication, (Chen, Chen, and Lin 2020) also summarizes A.I.'s practicality and roles, re-illustrating the wide-range of applications that A.I. can give to education. For instance, they categorized A.I.'s benefits into three areas, namely Administration, Instruction, and Learning.

The benefits of A.I. go beyond learners' and teachers' benefits. For example, law firms also invest in legal practitioners' education for A.I. technological awareness. (Janeček, Williams, and Keep 2021)' s research also highlights that legal startups concentrated on A.I. services can significantly reduce the cost of operation to legal firms compared to the traditional system and technology firms that only employed digital research and knowledge management tools. In short, the literature views have signified the practical benefits of A.I. in education from multiple stakeholder perspectives.

However, along with the benefits that A.I. brings to education, scholars also spot multiple challenges to implement this technology innovation into education. On the technical side, the problems revolve around how to collect and train the data in multiple academic disciplines (Chen, Chen, and Lin 2020). This is because artificial intelligence typically demands big data to learn and function efficiently (Berendt, Littlejohn, and Blakemore 2020; Barocas and Selbst 2016). On the learners' and users' side, without the well-rounded representation of learners across different backgrounds, big data's disparate impact can make A.I.'s conclusions discriminate against under-represented learners (Barocas and Selbst 2016). For example, if only wealthy students are using A.I. applications, machine learning will bias into costly educational solutions, such as buying more premium educational courses and hiring well-fit tutors. These solutions are not suitable for underprivileged students. The second problem is related to technological adoption. The lack of general knowledge to utilize A.I.'s innovation across disciplines have been highlighted as key factors across recent research (Chen, Chen, and Lin 2020). These technological and users' challenges are actually inter-connected. Without users' readiness to adopt A.I.'s innovation across different backgrounds, there will be no data for researchers to train A.I. and prevent data bias. Because of these challenges, our research concentrates on the technological readiness, acceptance,

and adoption of Vietnamese Christians and non-Christians across different generations. With a well-rounded background of participants, the research can help entrepreneurs effectively develop their Minimum Vital Product (MVP) in religious education.

2.2 The application of technological advancement and artificial intelligence in religious education:

Teaching religion using technology is an emerging topic in religious and technology research that demands more attention for multiple reasons. Firstly, the harmony between religion and technology can ensure the parallel goals of cultural enrichment and economic development in a society. According to (Sumarni et al. 2020), the lack of technological and religious education combination has increasingly separated religious and cultural sciences from science. The separation between science and religion makes students' perception of religion and science are two independent fields and cannot be united. This mindset is harmful to religious countries, such as Indonesia, to foster economic innovation and conserve cultural heritage. Secondly, research also finds positive impacts of technology in religious teaching, stimulating both classroom and beyond classroom education. In 2018, (Hilton III 2018) collected and edited a series of articles on teaching religion using technology. The book employs case studies analysis to search for insights on how technology can improve student performances in religion classes at a higher education level. Some feature investigations include the application of Massive Online Open Seminars in Religion, the role of Social Media, and Characterizing Gameful Learning. However, there is no in-depth paper that investigates the roles of artificial intelligence in religious education.

The application of AI in religious education is currently under-research. Nevertheless, early research also finds positive impacts of Artificial Intelligent in religious teaching. For example, (Alemi et al. 2020) observed a high acceptance rate of the social robots among participating students, greater participant attention, and excitement levels in the Islamic religion courses. Based on quasi-experimental research, (Syarif 2020) also found that e-learning platforms can effectively enhance students' positive attitudes toward Islamic values. The e-learning platform with a specialized education system is also an effective solution to teaching Islamic values in locations that are lacking physical Islamic teachers. Nevertheless, many literature gaps need addressing in this topic. Most of the research in technological adoption and religious studies remains on Islamic regions and Islamic countries, and Westerners' theology. Since each religion has different ideologies toward technology adoption and a country's religious-cultural can further influence learners' motivation in religious learning, there is a lack of diversity in religion and a lack of cultural-political representations. This literature gap motivates the researchers to decide Christianity as a controlled religious factor and to choose Vietnam (a secular country) as a research context.

2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

Although there are other models of technology acceptance, the theoretical framework of this research is the UTAUT. The UTAUT is developed by Venkatesh et al. after they identified eight key factors, namely (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) facilitating conditions, and user acceptance of technology innovation. According to (Venkatesh et al., 2003), Performance Expectancy (PE) illustrates how the individual believes using technology will improve their performance. Effort Expectancy (EE) signifies the level of ease for individuals

to operate the technical application. As the ease of technology increases, the users will increase their adoption rates. Social Influence (SI) examines how users' relatives can influence their new technological innovation adoption rate. Finally, Facilitating Conditions (FC) investigate how the availability of technical infrastructure and technical support availability can influence users' adoption rates.

Much empirical research has based on and recommended the UTAUT model to investigate the technological readiness and acceptability of new technologies across disciplines, such as healthcare, banking, entrepreneurial innovation. (Oppong, Singh, and Kujur 2020; Renaud and van Biljon 2008; Zhou, Lu, and Wang 2010). UTAUT has also been vastly used when examining user acceptance of different technologies, ranging from smart grids IoT, mobile devices, blockchain technology, and others (Radenković et al. 2020; Lin and Kim 2016). The application of the UTAUT model is also seen in religious technology adoption research. For example, BAAZEEM employs UTAUT and performs partial least square structural equation modeling (PLS-SEM) to find the relationship between internet users' religiosity on social media and technology adoption in Saudi Arabia (Rami 2020). Syed Ali Raza is also based on UTAUT to analyze mobile banking acceptance in Islamic banks (Raza, Shah, and Ali 2019). Since the model has high predictability of technological user's behavioral intention and can explain technology acceptance for new technological innovation in the religious and educational context, we have adapted UTAUT to examine the Artificial Intelligent acceptance of religious education under four factors: performance expectancy, effort expectancy, social influence, facilitating conditions (Rahman et al. 2017; Huang and Kao 2015).

UTAUT also highlights four moderator variables: (1) age, (2) experience, (3) gender, and (4) voluntariness of use, which have been empirically proven to moderate the intensity of

technology adoption. To ensure the research's specificity and concentration, the researchers only exam age as a moderator variable. Empirical research has illustrated that each generational group has different motivations underlying technology behaviors. Research also shows that each generational group has different patterns regarding the usage and engagement with technology. For example, (Calvo-Porral and Pesqueira-Sanchez 2019) find that Generation X is driven by information search and utilitarian purposes. On the other hand, Generation Y normally engages with technologies for hedonic and entertainment purposes. (Roblek et al. 2019)' s data indicate that functional value, fun value, and value for money plays a crucial role in Gen-Z's technological adoption. Precedent research also points out that the ability to adapt and master new technology simultaneously better in subsequent generations than their former counterparts from the silent generation up to the current generation Z (Emily 2019). However, there is a lack of qualitative research on Generations X, Y, and Z's motivations and usage patterns of technology in religious education applications. This motivates the researchers to choose age as a moderating variable in this research.

Methodology:

3.1 Research Setting:

Vietnam is a developing country in the South East Asia region. Currently, Vietnam has over 90 million citizens, with 10% following Catholics and Protestants. After resolution no. 24 from 1990, Vietnam adopted freedom of religion, allowing the ease to convert from one religion into Christianity (Q. Nguyen et al. 2020). Secondly, in Vietnamese culture, multiple research illustrates that religious values play a crucial role in parenting practices and values. This cultural influence is

not limited to Christianity but all other religions in Vietnam; hence, children tend to share the same religious values and orientation with their parents (Tatyana, Nguyen, and Jin 2014). Thirdly, according to DataReportal – Global Digital Insights, over 70% of Vietnamese citizens are internet users, ranked 79/200 countries. The high internet access rate illustrates the opportunity and availability to access the internet and artificial intelligence's innovations. From the top-down point of view, it highlights the general population's technological readiness, which might underestimate the real generation gap in technological readiness and adoption according to the Unified Theory of Acceptance and Use of Technology (McDonough 2016). Finally, although there are not any comprehensive scientific studies on the impacts of A.I. on Vietnamese citizens, Organisation for Economic Co-operation and Development points out that the customers are starting to interact with A.I. technology in daily life, such as Chatbot for commercial usage and A.I. for film recommendation via Youtube and Netflix (OECD.ai 2020). Hence, Vietnam as a research setting reflects the context of (1) freedom of religion, (2) shared religious beliefs between parents and children, (3) relatively high proportion of internet users, and (4) a developing country with growing exposure to artificial intelligent adoption in education. Vietnamese context's features allow researchers to investigate technological adoption and readiness without worrying about religious constraints. Moreover, this research setting allows future scholars to externally validate the research and conduct the comparative review.

3.2 Study Design and Data Collection:

This researcher employs semi-structured interviews to generate insights on Vietnamese Christian and Non-Chirstain's readiness and acceptance toward AI's innovation in religious education and practices. The in-depth interviews provide multiple benefits, such as ensuring rich and detailed information on the experiences and perceptions of interviewees (Oppong, Singh, and Kujur 2020).

This method also allows researchers to investigate interviewees, attitudes, expectations, and concerns toward the implementation of AI's innovation in religious education and practices (Wright and Headley 2021; Klappe, de Keizer, and Cornet 2020). The research separates the interviewees into six distinct groups, depending on their religious orientations and ages. This categorization allows the researchers to compare and evaluate the moderating effect of age and religious orientation in the Unified Theory of Acceptance and Use of Technology. To identify the sample size, the researchers follow the rule of saturating data, which achieves when no new information is derived from the new interviewees (Saunders et al. 2018). To ensure the reliability and validity of our coding and interpretation, the researchers employ member checking. This method allows the researchers to interact again with participants and ensure the researchers' interpretation correctly represents the participants' culture, enhancing the credibility and validation of the study (Matthes, Davis, and Potter 2017).

The researchers carried out the semi-structured interviews via Zoom from November 2020 to January 2021. Before the interview, the researchers will collect the key sociodemographic characteristics of participants, including age, gender, education, religious orientation, professional information, and their engagements with Christian and technology in daily life. The initial interview allows the researcher to screen out unfit participants with the scope of research, such as participants born before 1965. The key sociodemographic characteristics of participants are summarized in **Table 1** in the Result section.

The researchers will then ask whether the respondents understand the concept of Artificial Intelligence clearly and how this technology can impact education and religious practices. This step ensures the participants have a comprehensive and correct understanding of the AI's application, preventing response bias due to misunderstanding of the concept. The core interview

questions were based on UTAUT constructs, specifically Performance Expectation (PE), Effort

Expectation (EF), Social Influence (SI), and Facilitating Condition (FC). The interview is recorded

by both audio and written documents, ensuring the validity of responses. We also keep track of the

similarity of answers on the same questions by different participants to strengthen the validity

(Oppong, Singh, and Kujur 2020; Klappe, de Keizer, and Cornet 2020).

3.3 Thematic Analysis Process:

The research follows a thematic analysis approach, developed by (Braun and Clarke 2006), to

analyze the collected data. This approach allows "identifying, analyzing, and reporting patterns

(themes) within the data" and "rigorous thematic approach can produce an insightful analysis that

answers particular research questions." Multiple previous research has employed this method to

generate theories and trends from interview data in education, business, and religious discipline

(Riegel and Delling 2019; Evans 2013; Jones, Coviello, and Tang 2011).

Firstly, researchers familiarise themselves with the transcripts by reading and listening to

the interview repetitively. Secondly, the researchers develop the initial codes after recognizing the

meaningful trends and patterns. Thirdly, as the coding process continues, a similar group of codes

is highlighted and sorted. If there are additional themes, the researchers will sort them into

categories based on the additional codes that were related and linked to the previous one. More

specifically, the researchers employ axial coding, where all the clusters of codes relating to the

UTAUT constructs. For example, the initial code "internet accessibility" from the interviewee's

answers will recode into UTAUT "facilitating conditions." construct (Oppong, Singh, and Kujur

2020; Klappe, de Keizer, and Cornet 2020). The process of defining and refining themes and their

subthemes allows the researchers to generalize the insightful theories from data in a concise and

punchy manner (Oppong, Singh, and Kujur 2020). Finally, the research sorts these themes and subthemes into a matrix table for comparing the results between different age groups and religious orientations.

To visualize the textual data, the research follows the procedure suggested by Klappe, de Keizer, and Cornet 2020). If multiple comments portray the same construct, we will select one or two of these comments from the data-poor to represent the UTAUT's construct (**Figure 1** in the Result section).

Data Presentation and Analysis:

4.1 Demographics of the interview participants:

The research reached data saturation after 32 participants; hence, we decided not to hold any further interviews. All 32 interviews were conducted via Zoom and Messenger, and the median duration of an interview was 22 (15 –35) minutes. **Table 1** summaries the key sociodemographic characteristics:

Key sociodemographic characteristics		N (%)
Gender	Male	17 (53)
	Female	15 (47)
Age	Generation X	08 (25)
	Generation Y	15 (47)
	Generation Z	9 (28)
Educational Attainment	No formal education	0 (0)
	Less than a high school diploma	6 (19)
	High school diploma	8 (25)

	Bachelor's degree	17 (53)
	Graduate degree	1 (03)
Working Industries (Multiple Answer)	Religious related industry	5 (14)
	Technology related industry	6 (18)
	Educational related industry	10 (29)
	Others	14 (40)
Religious Orientation	Christianity	17 (53)
	Atheism	9 (28)
	Other religions	6 (19)
The number of years engages with Christianity	30+ years	11 (61)
	21-30 years	3 (17)
	11-20 years	3 (17)
	1-10 years	0 (0)
	Less than a year	1 (5)
The Frequent of Internet Usage	Daily	28 (87)
	1-6 times a week	3 (10)
	Less than once a week	1 (3)
	Never	0 (0)
The Exposure Level to Artificial Intelligent	Experts in fields (AI Developer, AI Researchers)	2 (6)
	Recognize AI applications and engage with AI daily	6 (19)
	Engage with AI daily, but do not recognize the AI applications	16 (50)
	Never heard of the AI concept	8 (25)

Table 1: Key sociodemographic characteristics

According to this table, the religious-related industry includes professional workers in the church, namely one priest and two music director/organist. There are two research scholars, one specializes in Vietnamese culture, and another specializes in religious studies. Technology related industry includes respondents, namely product manager at the engineering company Bosch, a game developer, two website developers, and two AI specialists. Respondents who work in the educational industry include lecturers at universities, teachers from primary to high schools, academic researchers, and curriculum developers. Examples of other professions are film director, writers, biochemistry scientist. Although the professional information is not a criterion for recruiting participants, the diversity of professionals gives valuable insight into how they may utilize the AIED applications. Regarding religious orientation, other religions are mainly Đạo Mẫu (the worship of mother goddesses) and Buddhism.

Based on the provided information, there are some notices of potential bias in response regarding the Vietnamese majority's representation. In this research, most participants engage with internet activity daily (87%), higher than the average internet user rate in Vietnam at 70%, making the overall response bias toward higher technological readiness. Moreover, 75% of the participants, encompassing all Gen X respondents, do not recognize their usage of Artificial Intelligent and do not understand this concept thoughtfully. Since all Gen X's respondents never heard of the AI concept, the researchers have included short training and explanation of AI concepts to the participants. However, their lack of knowledge has given various comments on technology in education as a whole rather than specifically to AI. Regardless, the researchers still merit these comments and formulate them into AI context in the results and discussion sessions. The in-depth exploration of these biases will be discussed further in the Discussion section.

4.2 Motivations to participate in religious education:

According to the participants' comments across generations, there are distinctive motivations to adopt AI in religious education across different age groups and religious orientation. Firstly, the research will address the motivations from different age groups among the Vietnamese Non-Christians. These motivations will create a foundation and navigate how each group reacts to the UTAUT constructs differently.

Firstly, all Gen Z respondents (N = 5) believe they have no motivation to study Christianity. Their comments are related to (1) The bore of religious studies and (2) The lack of practicality in religious study. Their comments are not limited to Christian education. However, participants in generation Y and X show a different pattern. They are eager to learn about religious education for 3 primary purposes: (1) Marriage (distinctively for Christian education), (2) Business activities, (3) Cultural studies and research. Regarding marriage, according to Vietnamese-Christian tradition, a Non-Christian person must conduct marital conversion (H. T. Nguyen 2017). Although this practice has been waived as Vietnam becomes a secular state, many religious families still prefer to follow this tradition. Hence, many Gen Y respondents who have a Christian partner are motivated to use Artificial Intelligence in learning religions. Respondents, whose occupations are business development and marketing, accumulate religious knowledge and study religious behavior to develop an effective campaign for religious communities. Two respondents- a game developer and a film director- also demand religious education to develop games and films with religious elements, such as Assassin's Creed. Finally, respondents who worked in education also need religious knowledge for cultural studies, historical studies, policymaking, and comparative religious studies. These reasons are only emerging in respondents with working experience and at the age of marriage; hence, it is understandable why generation Z respondents do not think about these reasons. Surprisingly, only one respondent mentions studying religion because "I want to

find a spiritual value and emotional safety." This unexpected observation illustrates a shift in religious values in every life. For Non-Christian Vietnam, learning Christianity and religion are shifting from spiritual values into more material and financial values.

For Christian respondents, the needs for religious studies are mandatory. The most cited reasons are becoming more aware and engaged with their religion. The level of Christian education is directly related to the services that can benefit from the Church. For example, the respondents, who reside in ecclesiastical provinces such as Nam Dinh and Vung Tau, state that one must pass a certain educational level to start to confess one's sin or learn marriage theology. Christian parents also hope AI can fasten the learning process and enhance their children's engagement in theological education. Some Christian respondents also demand AI to specialize their education pathway, making it easier for them to become a priest. These motivations are prevalent across different generations among Christian respondents. Hence, this evidence shows Christian respondents still firmly hold spiritual values rather than shifting into material and financial values like the Non-Christian.

4.3 The results of each UTAUT constructs on reasons for the readiness and acceptance of AIED across generations:

Based on the discussion about the facilitators and barriers taken from respondents' quotes, this section devotes to conceptualize and adopt the UTAUT model into the Vietnamese religious AIED context. The coded data suggests 24 sub-themes in total, depicted in **Figure 1**. The examples of essential quotes and comments in each UTAUT construct sub-theme will be taken from **Figure 1** and displayed in **Table 1**. Each UTAUT construct will be discussed based on its sub-theme. In each sub-theme, the paper will analyze the similarities and the generality in consumption patterns

among all groups of age and religious orientations. After that, the paper will report on how these

patterns may alter concerning different groups of age and religious orientations.
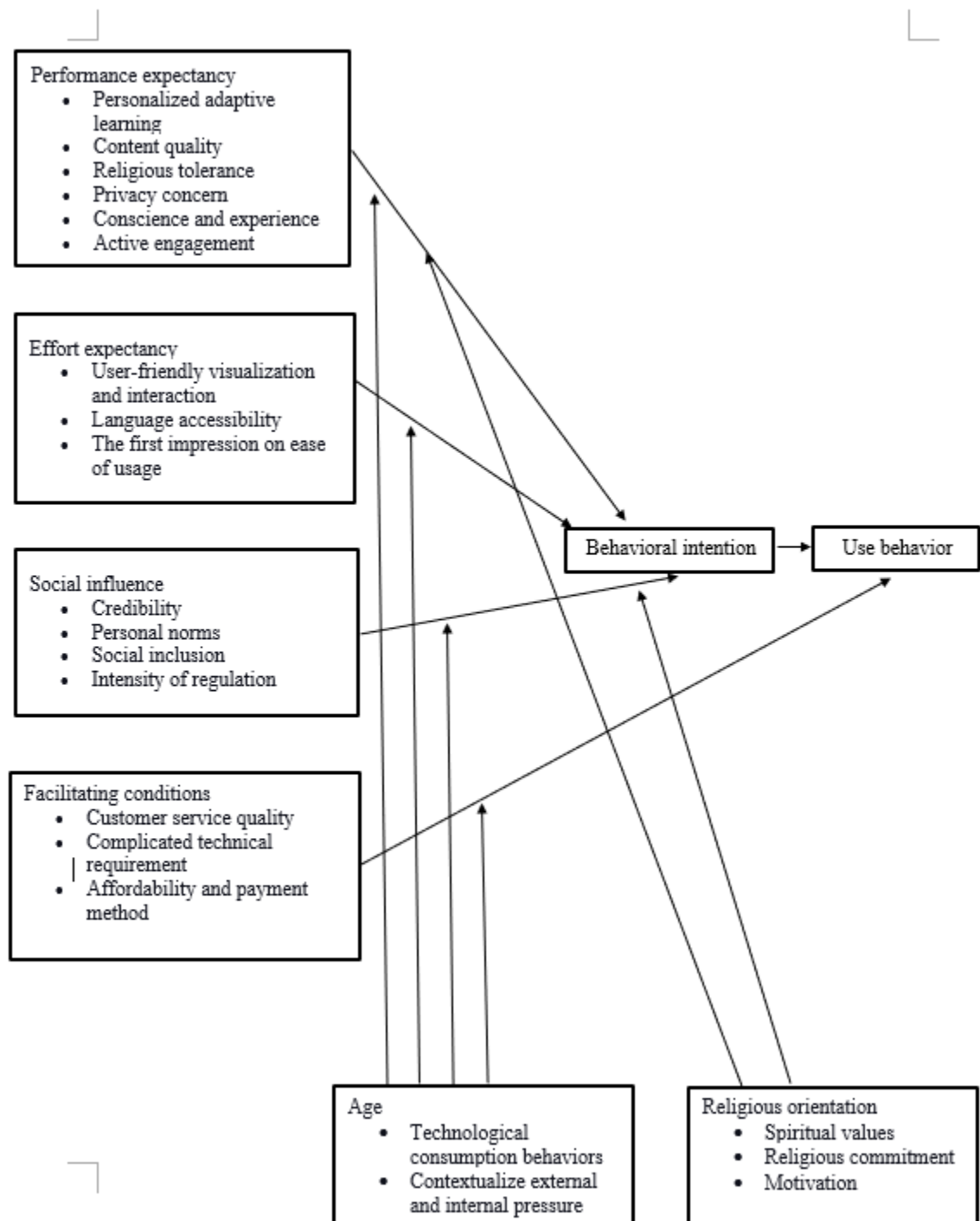
Performance expectancy
- Personalized adaptive learning
- Content quality
- Religious tolerance
- Privacy concern
- Conscience and experience
- Active engagement

Effort expectancy
- User-friendly visualization and interaction
- Language accessibility
- The first impression on ease of usage

Social influence
- Credibility
- Personal norms
- Social inclusion
- Intensity of regulation

Facilitating conditions
- Customer service quality
- Complicated technical requirement
- Affordability and payment method

Behavioral intention → Use behavior

Age
- Technological consumption behaviors
- Contextualize external and internal pressure

Religious orientation
- Spiritual values
- Religious commitment
- Motivation

Figure 1: Theoretical model developed based on the coded data, adapting from UTAUT model

Subthemes	Respondents' sample quotes
Performance expectancy	
Personalized adaptive learning	R1: "I am writing a screenplay related to religion. I don't care about things like the New Testament very much. I just want to know more about Christian life in an easily understandable way so that my film can depict the true daily life of the character." R2: "The vividly and attractively designed mobile app appeals to me. I will learn faster if the information is delivered through lively images and interactive games."
Content Quality	R3: "AI can access various sources of information, from existing materials to its contact to and feedback from users, so I believe it can bring me neutral content without too leaning towards any sides." R4: "When programmed to identify and automatically exclude languages that do harm for any group of people, AI is able to deliver non-extreme content." R5: "I am usually in a quandary about moral issues. In those situations, it is great if this AI application can give me related quotations from the Bible to light to my path and help me make right decisions."
Avoid Embarrassment and Promote Religious Tolerance	R6: "I know many Christian girls do not have premarital sex just because they think it is against God's words. However, I do not think they used to have a conversation with people who can verify whether it is true or not. Asking AI may be a solution." R7: "I used to consider Christian vegetarianism weird as they still eat fish. After curiously studying the reasons, I erased that prejudice… AI can help do that, but it still has a long way to go before changing the mind of the obstinate."
Privacy Concern	R8: "When using a service paid by debit card, I have to be always cautious of identity fraud… I will use carefully secured religious AI

	applications."
	R9: "If information is breached, vulnerable groups such as LGBT may suffer. I fear they can be excluded from the Christian community."
Critical Engagement	R10: "Vicar is still a human and has personal opinions. Information can be superficial or misleading if acquiring from just one person."
	R11: "When all information is delivered by some clicks, I likely become passive with religion. Learning by myself, if I misunderstand something, I can take wrong practice without notice because I do not actively reflect anymore. "

Effort expectancy

User-friendly visualization and interaction	R12: "I have to switch to a large word size to use a smartphone. I prefer audio content rather than text one."
	R13: "I am hesitant to let my children study the catechism through apps. When my son learns English through an application, there are many popping up ads that display violent video games."
Language accessibility	R14: "I did not learn English at school, so understanding instruction in English is impossible."
	R15: "I got an 8.5 score in IELTS reading, but often I cannot understand technical terms. This situation is applicable when it comes to studying religions."
The first impression on ease of usage	R16: "I am not interested in religion. Especially if the app is not portable, I will never give it a try."
	R17: "The long registration process annoys me very much. Its complications can make me stop trying it."

Social Influence

Credibility	R18: "When my friends and family use it first, then praise its quality, it is likely that the app is worth trying."
	R19: "Vicars are qualified to spread the Word of God, so their opinions about religion-related stuff are also reliable. If they endorse the app, why don't we try using it?"

Personal norms	R20: "Just as I feel a moral obligation towards choosing eco-friendly products, I will be willing to use the app that resonates with my personal interests."
Social inclusion	R21: "I am a big fan of Jennie (Blackpink). She is a Samsung Ambassador. Many fans bought Samsung smartphones, so did I." R22: "The major reason I buy a product is its practical usage. I do not buy it just to follow the herd."
The Intensity of Regulation	R23: "The government helped me know about the existence of the Blue Zone, but I downloaded it because I know it is effective." R24: "I find it cool to do against what is highly recommended. I just follow the law because otherwise I can be fined."
Facilitating conditions	
Customer service quality	R25: "AI applications are really foreign to me. I think I need staff to respond to my questions on my first days of using it." R26: "It is challenging for me to communicate my issues through Q&A sections. Scroll down, scroll down and scroll down. Then I still cannot find the answer for my own question."
The complexity of technological requirements	R27: "Free wifi is easily accessed in Vietnam nowadays." R28: "The apps taking up too much memory can render my phone inclined to lag."
Affordability and payment method	R29: "Vietnamese people are usually reluctant to subscribe to the service. If the app needs financial support to operate, it can serve in the form of tutoring." R30: "I am not familiar with using a VISA card to process online payment. It usually requires a lot of steps and filling-in information."

Table 2: Respondents' sample quotes on each subtheme.

Performance expectancy

A.I.'s conscience and life experiences is a core argument against A.I.'s application in religious education and religious practices from all Christian respondents. According to these respondents, their primary motivation to seek religious knowledge is to find spiritual guidance and inner peace rather than theological knowledge. They insist that since A.I. does not have its soul and life experiences; hence, it cannot provide insightful spiritual and ethical advice on contextualized situations. Moreover, Christian respondents also seek a sense of forgiveness and empathy from other people, specifically the vicar. The appearance of A.I. cannot facilitate their emotional and spiritual relief compared to the vicar. The researcher has further engaged with the respondents by creating a hypothetical situation where A.I. can be the embodiment and has its soul and memory. However, the respondents refuse to address this situation to a philosophical extent. Nine respondents directly answered similarly to "Impossible" without further explanation. Eight other respondents mostly relied on the concept of how much "human" do they feel into the A.I. One Christian respondent refers to various comic and literature A.I. robots, such as Doraemon- the main character from the Doraemon manga series written by Fujiko Fujio. For him, if an A.I. like Doraemon (with its memory, its own emotion, and its personal norm), he will not see a difference between A.I. and a real human. However, this development for A.I. seems too far from reality to create, and this demand seems too much for an AIED application in religious education. However, according to the priest, an AI like Doraemon can still not replace the priest's roles as a teacher and spiritual guidance. He aruges humans are the product of god, and god entitles humans to benefit from the sacrament. A.I. is just a product of humans; hence, it does not have the spiritual power to perform sacrament and provide theological teaching. In short, the questions of A.I. and personhood are the key barrier for religious AIED application to overcome.

Personalized adaptive learning is the most cited factor from all respondents regardless of their religious orientation and age. Personalized adaptive learning defines a pedagogical system that adjusts to the level or type of course content based on an individual's abilities or skill attainment. It can also tailor the teaching content to fit all the learners' individualized needs (Peng, Ma, and Spector 2019). The personalized adaptive learning, firstly, can concentrate on the type of content. For example, a religious AIED can tailor the information for different disciplines, such as theology content for someone who aims to become a priest, or art and literature-based content for game developers and scriptwriters (R1). Secondly, the personalized and adaptive elements can also show the level of technicality and complexity in the language. Generation Z and non-Christian respondents demand a more simplified version of language and beautiful visualization because their goals are to understand the theological information (R1, R2). However, for the older Christian group, they urge precision; hence, they demand a more technicality and precise languages. This technical demand from the respondents to religious AIED is doable. Currently, AI researchers are working on text simplification based on natural language processing (NLP) with an example of Simple Wikipedia (Xu, Callison-Burch, and Napoles 2015). However, there is currently no pivot research on text simplification in Vietnam, suggesting potential growth and demand for Vietnamese text simplification in the future. Finally, the AIED should tailor their data visualization and interaction with information for different audiences. For example, children would prefer to learn religious knowledge through games. Although admitting that games and movies do not provide a correct and well-rounded religious representation, six respondents believe they feel more engaged with theology concepts from these media than with church teaching (R2). AI developers should develop films and interactive games that provide the well-rounded religious representation to create a win-win situation.

Content Quality also plays a crucial role in performance expectancy. According to the respondents, the elements that create high-quality content are (1) up-to-date, (2) bias-free and critical, (3) to answer practical questions, such as marriage and daily ethical dilemmas. In respondents' comments, being up-to-date means the religious AIED application and chatbot are aware of the religious-related law and regulation update or provide theological comments on contemporary social issues, such as robotics and LGBT rights. The respondents across all groups also advocate for bias-free and non-extreme content. According to the respondents, the bias-free can be achieved based on consistently updating the AI's understanding of theology based on their daily interaction with different clients and learners (R3). Regarding non-extreme content, the AI should identify and exclude extreme contents that may promote hatred in society (R3, R4). From the technical perspective, this demand from the respondents creates a dilemma in AI's programming. Since AI does not have their conscience, they do not have an inner moral value to spot extreme opinions from non-biased and tolerant opinions. The AI specialists must collaborate with philosophers and theologists to draft a non-bias and non-discriminate algorithm as a base for the religious AIED. The development of AI to combat hate speech has been researched by various educational institutions, such as Carnegie Mellon University, University of Washington, and the University of Southern California, and has been applied by large corporations like Facebook and Google (Kennedy et al. 2020; Ryan et al. 2020; Sap et al. 2019; MacAvaney et al. 2019). According to respondents, the element of answering practical questions provides them tangible benefits; thus, this element gives them the motivation to use the religious AIED services. Interestingly, the Non-Christian group defines practical answers as "solutions" for marriage, business, and marketing questions. On the other side, the Christian group believes that practical answers are associated with more emotional and spiritual values, such as how to live a peaceful life (R5). On a first glimpse,

the observation shows the Christian respondents have a rich emotional life compared to Non-Christian life. However, this result may only arise because the researchers concentrate on AIED in a Christian religious context, and not many Non-Christian interests and have faith in Christian ethical and spiritual values.

Avoid Embarrassment and Promote Religious Tolerance is an unexpected and novice sub-theme that the researchers encounter very often that does not appear or discuss intensively in the previous scholastic papers. According to respondents, the topics, such as sex education, LGBTs, criticism of Christianity's belief from comparative perspectives, are taboo in the religious and Vietnamese cultural context. Posing questions related to these topics with parents and friends normally pose heated debate or create embarrassing situations; hence, many respondents demand a safe place for discussion without judgment (R6). They believe that an interaction with an AI can overcome such challenges. Although all respondents agree that a conversation with an AI chatbot can prevent embarrassment, they do not agree on the benefits of promoting religious tolerance. According to previous research, religious tolerance is the ability to accept, respect others' religious beliefs and the ability to resolve faith conflict situations in a peaceful and open-minded manner (Mulya and Aditomo 2019; Firdaus 2018). On the one hand, respondents believe that by learning from people across the world and scholars, AI can receive well-rounded perspectives from comparative religious knowledge; hence, it can generate more bias-free and more tolerance content. On the other side, others argue that religious AIED is still a robot without a personal norm and without an ability to perform critical thinking. Hence, they cannot indeed facilitate an insightful conversation about religious tolerance (R7). The lack of emotional and spiritual core makes AI merely a knowledge summarizer and never becomes a good debater and interpreter of theological concepts. The respondents suggest that AI can use their algorithm to analyze the

religiosity and personal norm of a learner and mix them with other learners anonymously to prevent embarrassment and facilitate fruitful discussion. Since the debaters have similar personal norms, they might be more open to exchange their theological beliefs with their opponents in a more tolerant manner. This assumption has been agreed by most subsequent respondents (N= 8) across all groups of religious orientation and age; however, more data-driven research should be involved to verify this assumption.

Privacy Concern is a leading sub-theme that has been generated from respondents' quotes across all age groups and religious orientations. Many respondents stress the fact that various technology service providers in Vietnam sell their personal data, such as email addresses and phone numbers, to third parties. The breach of their data privacy leads to unwanted marketing phone calls and spam emails. Three respondents also reported trapping in scams that lead them to financial loss (R8). The respondents suggested that an AIED app should not collect their personal data, such as phone numbers, email addresses, digital payment, and banking information. Another option is that religious AIED providers must develop a highly secure cybersecurity system with certification from credible third-parties, such as governmental organizations. Moreover, respondents also believe that some of their data, for example, sexual orientation and their interest in unorthodox belief, maybe sensitive in a theological and Vietnamese cultural context. If the data is breached and society is aware that he is an LGBTs member, he and his family will be stigmatized by their community and be expelled from the diocese (R9). However, according to the priest, the expulsion from the diocese is "quite an extreme comment"; still, the priest agrees there will be consequences from the church side. These experiences are not contextualized in Vietnam only. For instance, multiple papers have indicated that the consequences of the sensitive data breach on customers include financial loss, legal identity theft, and cyberbullying (Nigel 2015). To prevent

these consequences, over 68 countries worldwide have categorized "Religious beliefs or affiliations" and "Sexual life, orientation, preference, or practices" as sensitive data (Wang and Jiang 2017).

Critical Engagement is a sub-theme that experiences heated debate from respondents. On a positive note, respondents think that AIED can positively promote critical thinking in digital learners compared to traditional learners. They propose that since AI can quickly summarize and generate theological information from multiple sources, it will give learners a more diverse perspective than when they only interact with their vicars (R10). This benefit potentially reduces the likeliness of vicars manipulating the learners into extreme religiosity bias. The critical engagement can also provide the religious practitioners, such as priests and vicars, more knowledge to engage with their flocks. However, some respondents hypothesize into a contrasting scenario where learners are too reliant on AIED's information and refuse to self-reflect these concepts (R11). As religious education is a journey for self-reflection and spiritual enrichment, AIED in religious education may direct students to the wrong education path. Regarding these contrasting claims, there should be subsequent quantitative research to verify which claims are more supported data-drivenly. Still, the respondents' suggestions are only using AIED in religious education as an assistant tool for the vicars. While AIED provides learners with the knowledge, the vicars can guide their spiritual and emotional reflection, creating a supportive relationship.

Effort expectancy:

User-friendly visualization and interaction is the most cited element for effort expectancy across all generations and religious orientations. According to the Gen X respondents, they face aging eyes, making them unable to see the words clearly. This group of respondents demands large word sizes with minimal taskbars on the user interface. Moreover, generation X does not want to

concentrate on reading on the phone for long periods, and they are not familiar with typing on their smartphones. This group suggests sound system installation for receiving information and gives comments to AI (R12). Their cited examples are virtual assistants, such as Apple' Siri and Amazon's Alexa. Generation Y and Z demand more app customization that is fit with their extensive demand, such as light adjustment based on time and light intensity and the ability to customize the app's screen. For the children audience, Gen Y respondents, who are parents, hope there will not be inappropriate advertisements on the user interface that lure children into consumerism and psychological extremes. Some of the listed inappropriate advertisements on the interface are advertisements on brutal comics and games within religious themes (R13). Hence, AIED in religious studies should automatically customize the users' interface based on their characteristics and allow manual configuration from the learners. On a practical note, since each group has a different definition and expectation for user-friendly visualization and interaction, it might be a challenge to address all customers simultaneously. Hence, the app developers must be mindful of the target audience's specific needs to code the most user-friendly interface.

Language accessibility has been significantly emphasized by respondents as the most significant non-tech barrier for them to participate in AI applications. According to the respondents, there are not many AI applications in Vietnam written for Vietnamese citizens. For example, researchers have given examples for AIED to illustrate their performance, such as ELSA and Brainly; many respondents respond that they cannot understand the content and the app instruction. This problem is significant for older generations because they do not have a formal English education. Specifically, all generation X respondents do not understand the language in these AIED apps (R14). The researchers see that the English barrier is less visible in generation Z and Y, whose English is a compulsory class in the national curriculum. Even two respondents who

study abroad in English-speaking countries still believe that English in a religious context is highly specialized (R15). Their quotes can be summarized that the religious terminologies are not very commonly taught in national curriculums and also not commonly seen in IELTS prep-topics. Hence, in the Vietnamese context, future religious AIED applications should be in the Vietnamese language.

The first impression on ease of usage is a sub-theme that is worth researchers and application developers' attention. Some Non-Christian respondents stress that they do not have a strong motivation to learn Christian theology at the beginning. Hence, they will not even bother to test a religious AIED if it costs them time at the initial stage. This element relates to the concept of both physical and virtual first impression. One example of a physical first impression is the portability of the religious AIED (R16). Gen Z Christian respondents give an impression that the religious books for their weekly training are too heavy. Hence, they see digital ebooks and religious AIED apps as the potential solutions. According to our data, all Gen Y and Gen Z respondents believe the app should be downloadable into their smartphones and laptops rather than a separate product that creates more weight in their carrying bags. Regarding virtual first impressions, 4 respondents mentioned the ease in the registration process (R17). They prefer an automated login system based on their already established Facebook and Google accounts. Respondents also suggest allowing free exploration of trial services without the need to log in.

Social Influence:

Credibility is the most coined word by all of the respondents regarding social influence. For the non-Christian group, higher credibility comes from their peers' sponsor of a product (R18). By listening to testimonials from their trusted friends and family, they will have the resources to evaluate the quality and practicality of a religious AIED. Over thirteen respondents, across

different generations and religious orientations, confirm that word of mouth from friends influences their intention to buy and the final purchase more significant compared to social media or mainstream television marketing. For Christian respondents, the most credible source is the local vicars, who have excellent knowledge in Christian theology and understand their flocks' spiritual and emotional needs. If a product received a sponsor from the vicars, the church, and other Christian authorities, the Christian respondents will "wholeheartedly" support it. Respondents also commented that the previous claim is also valid in the context of religious AIED. Suppose their vicars endorsed that religious AIED application are credible to learn religion and practice Christianity. In that case, the Christian respondents will have no spiritual reasons not to adopt the religious AIED application (R19). This pattern highlights the need to break down the theological-technical barriers between the vicars and the religious AIED applications.

Personal norms are also a frequently mentioned sub-theme in the interview across religious orientations and age groups. According to (Kallgren, Reno, and Cialdini 2000), personal norms are the internal standards concerning a particular behavior rather than reflecting externally imposed rules. The element of personal norms is self-concept and self-experienced as feelings of a moral obligation to perform a particular behavior. Interestingly, most respondents refer to their intention to buy based on customer loyalties promotion and trial services from the business. If the religious AIED owners can tailor the products to meet customers' religious and non-religious moral values, the respondents will more likely purchase the products (R20). Moreover, regarding personal norms, most respondents, both Christian and non-Christian, do not oppose the application of AI in religious teaching. The only problems are to use AI in daily religious practices because the respondents feel the AI is not qualified enough for spiritual guidance ceremony.

Social inclusion is a repeatable theme suggested by Gen Z respondents across religious orientations. Gen Z respondents' quotes illustrate that these respondents are trend followers. They are more willing to buy a certain product to keep up with their circle of friends. For example, two respondents stated that they had brought technological products, such as smartphones and Artificial Intelligent apps, to support their idols and become active members of that fan community (R21). Another example is that Gen Z respondents are also more likely to subscribe to an online game to play with their friends. However, social inclusion is not a visible pattern in generation Y and generation Z. Some respondents in these two groups acknowledged that social inclusion is a factor that influences their technological purchasing. However, in general, they do not behave in this way. In short, they comment only to buy a product based on its practicality rather than to be included within a specific community or group of friends (R22).

The Intensity of Regulation is also mentioned by eight respondents, approximately 25% of the respondents. In this paper, the intensity of regulation defines the level of pressure that the authorities, such as the church and the government, impose on respondents to consume a certain product. At first, the researchers decided on The Intensity of Regulation as an element of social inclusion. However, the researchers decide The Intensity of Regulation as a separate sub-theme because of its interesting nature. One observation is that the intensity of regulation gives different results based on different respondents' personality. Many respondents cite Blue Zone as an example of their behavior under regulation. Blue Zone is a contact detection app that the Vietnamese government employs to combat Covid-19 by tracking potential Covid-19 carriers' traveling. According to Vietnamese regulation, it is highly recommended all Vietnamese citizens install the app. However, most respondents (N=24) believe that the media and governmental encouragement do not influence their choice significantly if they do not intend to use the product

(R23). Two Gen Z respondents also mention that they tend to do what is opposite to the authority's pressure because it makes them admirable by their peers. However, they will use the product if mandatory by law, such as using a digital ID card (R24). In short, a visible pattern related to religious AIED context is that the intensity of regulation does not matter until it reaches the mandatory level.

Facilitating conditions:

Customer service quality contributes significantly to the usage of religious AIED services. According to respondents, they demand human-supported service to guide them throughout the use of digital applications. Since there has been no religious AIED application in Vietnam currently, the customer service can provide extensive training and payment-technical support for respondents. This allows respondents to overcome skills and technical barriers to effectively employ the religious AIED services (R25). The customer service should be reachable from multiple communication means to fit with the communication styles of respondents. For example, Generation X respondents are not familiar with email writing or communication apps, such as Zalo, Viber, or Messenger; hence, they demand traditional phone calls. For introvert respondents, they require fast response email services or chatbot options. One side note is that the Q&A sections should involve visual step-by-step instructions or video records. However, other means of pre-recorded and pre-respond Q&A sections, such as text instruction, are not endorsed by the many respondents regardless of age and religious orientation (R26). They believe these pre-recorded and pre-respond instructions are hard to follow. Respondents further suggest app developers should create an AI application that can automatically sense computational errors and auto fix the problems.

The complexity of technological requirements is also flagged in multiple comments, especially from gen X respondents. *The complexity of technological requirements* includes (1) minimum hardware requirements, (2) accessibility to the Internet, and (3) compatibility with users' current technology. Regarding these elements, access to the Internet is not generally an issue for Vietnamese citizens as they can easily find free Wi-Fi services across the countries (R27). However, the hardware requirements pose a potential problem. Many respondents worry that a religious AIED app may be too heavy and too internet data-consuming to operate on their phones (R28). Respondents also hope that the religious AIED should design similar to how respondents normally interact with their familiar application or even incorporate it in their familiar app. For example, a Gen Z respondent imagines that a useful religious AIED app should design similar to Khan Academy with a specialized educational path for each learner. This similarity would help him easier to navigate within the app and utilize its contents and features.

Affordability and payment method involves how willing a customer will be able to pay for religious AIED apps and how the mode of payments may influence their intention to adopt and use religious AIED. The researchers acknowledge that Price Value is a separate construct in Unified Theory of Acceptance and Use of Technology Extension Model 2 (Ain, Kaur, and Waheed 2016); however, it will be categorized for this research as elements of facilitating conditions due to its similarity in nature. Nearly all respondents demand a free religious AIED app, which reflects the culture of non-paid apps in Vietnam. This can be a challenge for potential app developers and investors since respondents do not like to pay for religious AIED apps or watch advertising. One suggestion from a Gen Y respondent, a business development officer, is that a religious AIED app can expand into paid tutoring services by matching theology tutors and students (R29). Respondents across the religious orientation and age also report that they are not familiar with

fintech services, such as Google Pay, VISA payment, and Paypal payment. Nearly one-third of respondents say that they do not use Online Banking services (R30). The lack of exposure to fintech services makes it difficult for religious AIED app developers to charge these respondents. It can potentially create a technical barrier that potential customers will be unable to use religious AIED apps.

Religious orientations:

The impacts of religiosity on Unified Theory of Acceptance and Use of Technology has been explored by (Rami 2020) in the Islamic context; however, beyond this research, the role variable is still under exploration. Baazeem highlights the role of authority, such as the clerics, and how Islamic law might prevent the acceptance and adoption of new technology. Moreover, Baazeem's evidence and case studies, such as Saudi Arabia's ban on technology on religious grounds, are concentrated on countries with religious authority, who can impose mandatory law based on the governmental officers' interests. To enrich the literature, this research pays close attention to the impacts of religious orientation in a secular country and in a Christianity context. This study observes that religious orientation moderates the relationship between performance expectancy and social influence on behavioral intention. However, according to the coded data, there is no significant difference between Christian and Non-Christian groups regarding facilitating conditions and effort expectancy.

The moderating roles of religious orientation are stemming from three sub-elements: (1) spiritual values, (2) religious commitment, and (3) motivation. These three elements are usually the reasons that give each religious followers their unique demand and intention to adopt religious AIED products. For example, *the spiritual values* set up different needs between Christian and Non-Christian respondents on product performance expectations. For Christian respondents,

conscience and experience are requirements for them to trust the chatbox and conduct religious practices virtually. However, for Non-Christian respondents, this requirement is not a compulsory element for a religious AIED app. Religious commitment is defined as the interaction between people's spiritual consciousness and religious participation (Davidson and Knudsen 1977). As mentioned by one of the respondents, his Church directly prevents respondents from using AI for Sacraments due to the Christianity law's two intrinsic aspects: a "formal" structure of audible words (with visible gestures) and a "material" factor organized by the suitable form. This is different for Buddhism because some Buddhist respondents used to ask the Buddhist priests to conduct virtual and distant ceremonies. Moreover, according to our observations, the level of religiosity also impacts how a person is willing to adopt a critical view of their religions and how open they are to new changes. For instance, Christian respondents, who are not working in the religious industry, and Non-Christian are more open to hypothetical situations where AI's replace priests and vicars. On the other hand, some Christian respondents refuse to enter this hypothetical situation because it's against the Church's common practices and values. Finally, The in-depth data analysis for motivation factors has been mentioned in the previous section to set up the context and stage for UTAUT constructs analysis (please see 4.2 Motivations to participate in religious education).

Age:

According to our coded data, the age can moderate all the relationships within the UTAUT model because each group has its own (1) *technological consumption behaviors* and (2) *contextualize internal and external pressures*. This research agrees with the previous study that age moderates all 4 factors related to the UTAUT model. Besides, it gives new insight into the specific religious AIED context.

In our coded data, *technological consumption behaviors* are how a general group of people acts and interacts with technology. Regarding this first sub-construct, our investigation of age as a moderator in the religious AIED context sees a different pattern from previous scholastic papers in other tech-related fields. For example, (Calvo-Porral and Pesqueira-Sanchez 2019) find that Generation X is driven by information search and utilitarian purposes. On the other hand, Generation Y typically engages with technologies for hedonic and entertainment purposes. Vasja Roblek's data indicates that functional value, fun value, and value for money plays a crucial role in Gen-Z's technological adoption. However, this investigation observes that Gen Y is mostly driven by functional significance rather than hedonic and entertainment purposes. Gen X follows the trend and demand group inclusiveness rather than the functional value of a product. More specially, regarding Facilitating Conditions construct, age can significantly influence the respondents' capacity to adopt new technologies. For instance, in our coded data, the researchers see a negative correlation between aging and the ability to adopt new technologies or aging and understanding A.I. of concept. For example, nearly all Gen X respondents do not fully understand A.I. or have not heard of the A.I. concept. On the other spectrum, all gen Z respondents heard of this concept and utilized the A.I. in everyday life. The generational gap in technology literacy is one example that gives rise to the difference in technological consumption behaviors, leading to the difference in performance expectancy and facilitating conditions.

Contextualizing external and internal pressure is also an essential sub-themes that deserves attention. In our coded data, external pressure includes how different social and external influences may exert different levels of pressure uniquely to each group. An example of external pressure is that Gen Y and Gen X respondents bear a responsibility to earn income and make a living for themselves. Hence, they value flexibility and convenience as factors of effort expectancy.

Regarding Gen Z, their pressure comes from club inclusion and students' responsibility. They demand customization features, such as adding wallpapers or social matching features, to their religious AIED apps. Internal pressure concentrates on personal, physical, or psychological barriers to adopting new technology, such as common age-related eye problems and hearing problems in Gen X respondents. Because each age group has different pressures that prevent them from adopting religious AIED applications, it also alternates the intensity of the relationship between all constructs within UTAUT.

Discussion:

5.1 The factors impacting the acceptance of the religious AIED application:

According to our coded data, most respondents underestimate the benefits of the religious AIED application; however, they accept the idea of employing artificial intelligence in religious teaching. The non-acceptance responses are only coming from the Christian respondents, especially the church's staff. The limiting factors for Vietnamese citizens to accept the religious AIED application can be seen mainly in the Performance Expectancy construct, concentrating around the concept of personhood. The reasons to refuse religious AIED applications are (1) the questions of the spiritual capacity of artificial intelligence and (2) the teaching of Christian theology.

Regarding the claims about the spiritual capacity of artificial intelligence, during the initial analysis, the researchers believe that the refusal comes from the lack of knowledge about the potential benefit of artificial intelligence. For example, as cited in the literature review session, both (Alemi et al. 2020) and (Syarif 2020) see the evidence for acceptance of religious AIED application and the practical benefits of AIED in enriching learners' religious knowledge in the Islamic context. However, after re-designing the interview framework and continuously

mentioning the merits of AIED on religious education, the limiting factors for acceptance still not change. As stated in the data analytic session, respondents seek religious learning to develop a spiritual and emotional comfort rather than absorb new knowledge about their religions. The approach to measuring AI's educational value by concentrating on testing results and theological knowledge in precedent research is not completeness. Hence, this paper suggests that the spiritual capacity goes beyond the concept of delivering theological knowledge.

The teaching of Christian theology is also a limiting factor for the Christian to adopt the religious AIED application. The most cited reasons are Sacraments' nature for two intrinsic aspects: a "formal" structure and the "material." To ensure the acceptance of AI in Christianity in Vietnam, there is a need to re-interpret the Sacrament's two intrinsic aspects and AI personhood. The scholastic attempts to re-interpret and defend for technology transforming theology, virtual church, and sacraments and the application of Virtual Church and religious AIED applications are currently available (Malapi-Nelson 2019; Maggi and John 2018). There are two possible explanations for why the Vietnamese vicars and priests have not heard of this re-interpretation. Firstly, these materials are in English. This language barrier prevents Vietnamese Christian followers and practitioners from learning and developing critical thinking about accepting religious AIED applications. Secondly, this re-interpretation is considered unorthodox beliefs; hence, they are not mentioned in the learning curriculum. Two potential solutions to improve the acceptance of religious AIED applications to the Christian community are facilitating fruitful debate or creating workshop seminars with vicars and priests about the re-interpretation of the nature of Sacraments (Singler 2018; Reardon 1997).

5.2 The factors impacting the readiness to adopt religious AIED application:

The concept of readiness in this paper encompasses both (1) infrastructure readiness and (2) personal technical skills readiness. Infrastructure readiness is the state and ability of infrastructure to meet operational requirements of religious AIED applications, such as access to the Internet and smartphones' availability. Personal technical skills readiness addresses whether a person can learn and employ religious AIED applications, such as the knowledge to utilize Fintech for payment. According to the coded data, there is currently no problem related to infrastructure readiness. There is only one concern that the respondents' smartphones do not have enough computational capacity and internet data transmission rate to employ the application smoothly. This paper does not have enough data to answer this question; hence, the researchers suggest subsequent research to analyze whether the majority of Vietnamese's smartphones can meet the hardware and software requirements of religious AIED applications.

While generation Z faces no personal technical skills' problems to take advantage of religious AIED application, other generations demand multiple customer services and training supports. This technological consumption behavior is similar to preceding research in the literature review session. More precisely, the Vietnamese technology gap concentrates on the lack of skills to register and perform digital banking services and the language barrier- two new factors that have not been seen in previous research on AI application in religious education. Besides national policy-related suggestions, the solutions suggested by respondents are hands-on support from the religious AIED's business and the ability to customize the application based on personal needs.

Interestingly, some gen Y respondents also have their children, Generation Alpha (born after 2010). Although Generation Alpha is not a target respondents of this research, the paper still reports some insight into the personal technical skills' problems faced by Generation Alpha, such as the lack of technical skills and language to understand Christian theological concepts. As

religious education is mandatory for Christian children in Vietnam, subsequent research on generation alpha's needs and their technological consumption behavior can also provide practical benefits to the connection and acceptance of AI and religious belief.

5.3 Recommendations improve the acceptance, readiness, and adoption on A.I.'s Involvement in Religious Education:

Based on the data analysis sessions, the recommendations improve the acceptance, readiness, and adoption on A.I.'s Involvement in Religious Education are (1) receiving sponsorship from the church's authority, (2) allows trial service and customization usage, (3) the needs of education for digital literacy and language literacy. The (2) and (3) points have been addressed by multiple scholastic articles and policy notes in both the international and Vietnamese context (Tran et al. 2020). This research wants to concentrate on the (1) recommendation. According to the respondents and the priests, receiving sponsorship from the church's authority is the most important factor for them to accept religious AIED applications. The channel to receive the church authority's support are publications on respected religious journals or acceptance from the Catholic Bishops' Conference of Vietnam. Between the two options, publications on respected religious journals is a more doable option, but do not exert as much positive toward the Christian followers compared to the second option. The coded data also shows more respondents believe that the local vicars have a higher influence on their consumption behavior than the Catholic Bishops' Conference of Vietnam.

The suggestion of receiving sponsorship from the church's authority is an interesting finding. However, in this paper, conducting quantitative tests to verify these claims is out of this paper's scope. Moreover, there is a need to determine whether the respondents' claims and

recommendations represent the Vietnamese Christian community's general belief. The researchers suggest that subsequent investigations pay more attention to verify and fill these theory gaps.

Conclusion:

The research figured out the key factors that affect people's acceptance, readiness, and adoption of A.I's involvement in religious education by applying the UTAUT model. The study results find a wide acceptance among almost all interviewees, except for those who have absolute and abiding religious faith. Besides, people belonging to the Gen Z group are practically ready in terms of infrastructure and skills. In contrast, gen Y and gen X groups face difficulties with technical skills such as the payment process. The adoption of A.I application in religious education, however, is hindered by people's different motivations and the lack of concern for religious education. More precisely, while those whose religious knowledge acquisition is mandatory, such as priests and deacons, refuse to use it because it is against the canon, atheists intrinsically have little interest in studying religion.

On theoretical novelty, this research makes significant contributions to existing investigation in religious education and A.I. First, the study provides some insights into the relationships between performance expectancy and behavioral intention as well as between social influence and behavioral intention. Religious orientation was recognized to play an important moderating role in these two relationships but does not moderate the relationships of behavioral intention with effort expectancy and facilitating conditions. Second, the authors lay a foundation for developing a UTAUT model that contextualizes into religious AIED context so that future research can depend on it to conduct more in-depth quantitative research. Finally, while previous

articles mainly dig into the concepts of A.I. and religious education in countries favoring a specific religion, this paper explores those in Vietnam, which is a secular country.

On practical novelty, the study findings offer useful suggestions for entrepreneurs in technology and potential religious AIED service providers. With the research results, entrepreneurs can identify the potential customers' requirements and challenges so that they can adjust the characteristics of the products and services accordingly. The outcomes can also be used as market research, helping service providers aware of the demand for religious AIED applications. The study consequently incentivizes technological innovations and serves as a guide for programmers, developers, and designers to launch the suitable system, reducing the risk of the frailer in the post-implementation. Additionally, the research also suggests that one of the strategies to gain endorsement from religious practitioners is to provide more information about re-interpretation of sacrament and personhood by translating from foreign materials.

There are some limitations in the research that should be noted. First, this research only explores Christianity in the context of Vietnam. Each religion has different values and beliefs, leaving the acceptance of A.I's involvement to differ. Thus, future research can choose other religions in Vietnam or Christianity in other countries to study. Second, adopting a qualitative method also means that this research can only propose theories and patterns. If contrast ideas exist, the research does not have a data-driven response. Therefore, researchers in the future can get materials from this paper to undertake the quantitative analysis. Finally, variables in this research are limited by the UTAUT model, which may oversee many other variables. As a result, it is suggested that future research expand to different variables, such as monetary value and habit, to get a thorough result.

References

Ain, NoorUl, Kiran Kaur, and Mehwish Waheed. 2016. "The Influence of Learning Value on Learning Management System Use: An Extension of UTAUT2." *Information Development* 32 (5): 1306–21. doi:10.1177/0266666915597546.

Alemi, Minoo, Alireza Taheri, Azadeh Shariati, and Ali Meghdari. 2020. "Social Robotics, Education, and Religion in the Islamic World: An Iranian Perspective." *Science and Engineering Ethics* 26 (5): 2709–34. doi:10.1007/s11948-020-00225-1.

Ankita, Bhutani, and Wadhwani Preeti. 2018. "Artificial Intelligence (AI) in Education." Global Market Insights. https://www.gminsights.com/industry-analysis/artificial-intelligence-ai-in-education-market.

Barocas, Solon, and Andrew D. Selbst. 2016. "Big Data's Disparate Impact." *California Law Review* 104 (3): 671–732.

Berendt, Bettina, Allison Littlejohn, and Mike Blakemore. 2020. "AI in Education: Learner Choice and Fundamental Rights." *Learning, Media and Technology* 45 (3): 312–24. doi:10.1080/17439884.2020.1786399.

Berendt, Bettina, Piotr Mitros, Xanthe Shacklock, Michael Blakemore, Allison Littlejohn, and Philippe Kern. 2017. *Big Data for Monitoring Educational Systems*. LU: European Commission. Directorate General for Education, Youth, Sport and Culture. https://data.europa.eu/doi/10.2766/38557.

Braun, Virginia, and Victoria Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. doi:10.1191/1478088706qp063oa.

Calvo-Porral, Cristina, and Rogelio Pesqueira-Sanchez. 2019. "Generational Differences in Technology Behaviour: Comparing Millennials and Generation X." *Kybernetes* 49 (11): 2755–72. doi:10.1108/K-09-2019-0598.

Chen, L., P. Chen, and Z. Lin. 2020. "Artificial Intelligence in Education: A Review." *IEEE Access* 8: 75264–78. doi:10.1109/ACCESS.2020.2988510.

Clifton, Judith, Amy Glasmeier, and Mia Gray. 2020. "When Machines Think for Us: The Consequences for Work and Place." *Cambridge Journal of Regions, Economy and Society* 13 (1): 3–23. doi:10.1093/cjres/rsaa004.

Davidson, James, and Dean Knudsen. 1977. "A New Approach to Religious Commitment." *Sociological Focus* 10 (2): 151–73.

Dino, Pedreschi, and Miliou Ioanna. 2020. "Artificial Intelligence (AI): New Developments and Innovations Applied to e-Commerce." Policy Department for Economic, Scientific and Quality of Life Policies .

Emily, Vogels. 2019. "Millennials Stand out for Their Technology Use, but Older Generations Also Embrace Digital Life." *Pew Research Center*. https://www.pewresearch.org/fact-tank/2019/09/09/us-generations-technology-use/.

Evans, Carol. 2013. "Making Sense of Assessment Feedback in Higher Education." *Review of Educational Research* 83 (1): 70–120. doi:10.3102/0034654312474350.

Firdaus, E. 2018. "The Learning of Religious Tolerance among Students in Indonesia from the Perspective of Critical Study." *IOP Conference Series: Earth and Environmental Science* 145 (April): 012032. doi:10.1088/1755-1315/145/1/012032.

Foronda, Cynthia L., Margo Fernandez-Burgos, Catherine Nadeau, Courtney N. Kelley, and Myrthle N. Henry. 2020. "Virtual Simulation in Nursing Education: A Systematic Review Spanning 1996 to 2018." *Simulation in Healthcare: The Journal of the Society for Simulation in Healthcare* 15 (1): 46–54. doi:10.1097/SIH.0000000000000411.

Geraci, Robert M. 2013. "Robotics and Religion." In *Encyclopedia of Sciences and Religions*, edited by Anne L. C. Runehov and Lluis Oviedo, 2067–72. Dordrecht: Springer Netherlands. doi:10.1007/978-1-4020-8265-8_1229.

Hilton III, John. 2018. *Teaching Religion Using Technology in Higher Education*.

Holmes, Wayne, Maya Bialik, and Charles Fadel. 2019. *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*.

Huang, Chi-Yo, and Yu-Sheng Kao. 2015. "UTAUT2 Based Predictions of Factors Influencing the Technology Acceptance of Phablets by DNP." *Mathematical Problems in Engineering* 2015: 1–23. doi:10.1155/2015/603747.

Janeček, Václav, Rebecca Williams, and Ewart Keep. 2021. "Education for the Provision of Technologically Enhanced Legal Services." *Computer Law & Security Review* 40 (April): 105519. doi:10.1016/j.clsr.2020.105519.

Jones, Marian V., Nicole Coviello, and Yee Kwan Tang. 2011. "International Entrepreneurship Research (1989–2009): A Domain Ontology and Thematic Analysis." *Journal of Business Venturing* 26 (6): 632–59. doi:10.1016/j.jbusvent.2011.04.001.

Kallgren, Carl A., Raymond R. Reno, and Robert B. Cialdini. 2000. "A Focus Theory of Normative Conduct: When Norms Do and Do Not Affect Behavior." *Personality and Social Psychology Bulletin* 26 (8): 1002–12. doi:10.1177/01461672002610009.

Kennedy, Brendan, Xisen Jin, Aida Mostafazadeh Davani, Morteza Dehghani, and Xiang Ren. 2020. "Contextualizing Hate Speech Classifiers with Post-Hoc Explanation." In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*, 5435–42. Online: Association for Computational Linguistics. doi:10.18653/v1/2020.acl-main.483.

Kif, Leswing, and Oreskovic Alexei. 2019. "Anthony Levandowski, the Ex Google Engineer Indicted on Allegations of Trade Secrets Theft, Previously Founded a Church Where People Worship an Artificial Intelligence God." *Business Insider*, August. https://www.businessinsider.com/anthony-levandowski-way-of-the-future-church-where-people-worship-ai-god-2017-11.

Klappe, Eva S., Nicolette F. de Keizer, and Ronald Cornet. 2020. "Factors Influencing Problem List Use in Electronic Health Records—Application of the Unified Theory of Acceptance and Use of Technology." *Applied Clinical Informatics* 11 (03): 415–26. doi:10.1055/s-0040-1712466.

Knox, Jeremy. 2020. "Artificial Intelligence and Education in China." *Learning, Media and Technology* 45 (3): 298–311. doi:10.1080/17439884.2020.1754236.

Lin, Carolyn A., and Tonghoon Kim. 2016. "Predicting User Response to Sponsored Advertising on Social Media via the Technology Acceptance Model." *Computers in Human Behavior* 64 (November): 710–18. doi:10.1016/j.chb.2016.07.027.

MacAvaney, Sean, Hao-Ren Yao, Eugene Yang, Katina Russell, Nazli Goharian, and Ophir Frieder. 2019. "Hate Speech Detection: Challenges and Solutions." Edited by Minlie Huang. *PLOS ONE* 14 (8): e0221152. doi:10.1371/journal.pone.0221152.

Maggi, Savin-Baden, and Reader John. 2018. *Technology Transforming Theology: Digital Impacts*. William Temple Foundation.

Malapi-Nelson, Alcibiades. 2019. "Transhumanism, Posthumanism, and the Catholic Church." *Forum Philosophicum* 24 (2): 369–96. doi:10.35765/forphil.2019.2402.16.

Matthes, Jörg, Christine S. Davis, and Robert F. Potter, eds. 2017. *The International Encyclopedia of Communication Research Methods*. 1st ed. Wiley. doi:10.1002/9781118901731.

McDonough, Carol C. 2016. "The Effect of Ageism on the Digital Divide Among Older Adults." *Gerontology & Geriatric Medicine* 2 (1): 1–7. doi:10.24966/GGM-8662/100008.

Midson, Scott. 2018. "Robo-Theisms and Robot Theists: How Do Robots Challenge and Reveal Notions of God?" *Implicit Religion* 20 (3): 299–318. doi:10.1558/imre.35898.

Mulya, Teguh Wijaya, and Anindito Aditomo. 2019. "Researching Religious Tolerance Education Using Discourse Analysis: A Case Study from Indonesia." *British Journal of Religious Education* 41 (4): 446–57. doi:10.1080/01416200.2018.1556602.

Nguyen, Hung Thanh. 2017. "Buddhist-Catholic Relations in Ho Chi Minh City." *International Journal of Dharma Studies* 5 (1): 13. doi:10.1186/s40613-017-0060-1.

Nguyen, Quang, Valčo Michal, Krokhina Julia, Ryabova Elena, and Cherkasova Tatyana. 2020. "Religion, Culture, And Vietnam Seen From A Cultural-Religious Point Of View." *European Journal of Science and Theology* 16 (4).

Nigel, Wixcey. 2015. "Consumer Data under Attack: The Growing Threat of Cyber Crime." Deloitte. https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/consumer-business/deloitte-uk-consumer-review-nov-2015.pdf.

OECD.ai. 2020. "AI in Viet Nam." *OECD AI Policy Observatory*. Organisation for Economic Co-operation and Development. https://oecd.ai/dashboards/countries/VietNam/.

Oppong, Gladys Yaa Saah, Saumya Singh, and Fedric Kujur. 2020. "Potential of Digital Technologies in Academic Entrepreneurship – a Study." *International Journal of*

Entrepreneurial Behavior & Research 26 (7): 1449–76. doi:10.1108/IJEBR-06-2019-0401.

Ossiannilsson, Ebba, ed. 2019. *Ubiquitous Inclusive Learning in a Digital Era:* Advances in Educational Technologies and Instructional Design. IGI Global. doi:10.4018/978-1-5225-6292-4.

Peng, Hongchao, Shanshan Ma, and Jonathan Michael Spector. 2019. "Personalized Adaptive Learning: An Emerging Pedagogical Approach Enabled by a Smart Learning Environment." *Smart Learning Environments* 6 (1): 9. doi:10.1186/s40561-019-0089-y.

Radenković, Miloš, Zorica Bogdanović, Marijana Despotović-Zrakić, Aleksandra Labus, and Saša Lazarević. 2020. "Assessing Consumer Readiness for Participation in IoT-Based Demand Response Business Models." *Technological Forecasting and Social Change* 150 (January): 119715. doi:10.1016/j.techfore.2019.119715.

Rahman, Md Mahmudur, Mary F. Lesch, William J. Horrey, and Lesley Strawderman. 2017. "Assessing the Utility of TAM, TPB, and UTAUT for Advanced Driver Assistance Systems." *Accident Analysis & Prevention* 108 (November): 361–73. doi:10.1016/j.aap.2017.09.011.

Rami , Baazeem. 2020. "How Religion Influences the Use of Social Media: The Impact of the Online User's Religiosity on Perceived Online Privacy and the Use of Technology in Saudi Arabia." Kingston University London.

Raza, Syed Ali, Nida Shah, and Muhammad Ali. 2019. "Acceptance of Mobile Banking in Islamic Banks: Evidence from Modified UTAUT Model." *Journal of Islamic Marketing* 10 (1): 357–76. doi:10.1108/JIMA-04-2017-0038.

Reardon, Betty. 1997. *Tolerance: The Threshold of Peace*. Teacher's Library. Paris: Unesco Pub.

Renaud, Karen, and Judy van Biljon. 2008. "Predicting Technology Acceptance and Adoption by the Elderly: A Qualitative Study." In *Proceedings of the 2008 Annual Research Conference of the South African Institute of Computer Scientists and Information Technologists on IT Research in Developing Countries Riding the Wave of Technology - SAICSIT '08*, 210–19. Wilderness, South Africa: ACM Press. doi:10.1145/1456659.1456684.

Riegel, Ulrich, and Sarah Delling. 2019. "Dealing with Worldviews in Religious Education: Thematic Analysis on the Topical Structure of German RE." *Journal of Beliefs & Values* 40 (4): 403–15. doi:10.1080/13617672.2019.1618150.

Roblek, Vasja, Maja Mesko, Vlado Dimovski, and Judita Peterlin. 2019. "Smart Technologies as Social Innovation and Complex Social Issues of the Z Generation." *Kybernetes* 48 (1): 91–107. doi:10.1108/K-09-2017-0356.

Roll, Ido, Daniel M. Russell, and Dragan Gašević. 2018. "Learning at Scale." *International Journal of Artificial Intelligence in Education* 28 (4): 471–77. doi:10.1007/s40593-018-0170-7.

Rourke, Sue. 2020. "How Does Virtual Reality Simulation Compare to Simulated Practice in the Acquisition of Clinical Psychomotor Skills for Pre-Registration Student Nurses? A Systematic Review." *International Journal of Nursing Studies* 102 (February): 103466. doi:10.1016/j.ijnurstu.2019.103466.

Ryan, Dansby, Fang Han, Ma Hao, and Moghbel Chris. 2020. "AI Advances to Better Detect Hate Speech." *Facebook AI*. https://ai.facebook.com/blog/ai-advances-to-better-detect-hate-speech/.

Sap, Maarten, Dallas Card, Saadia Gabriel, Yejin Choi, and Noah A. Smith. 2019. "The Risk of Racial Bias in Hate Speech Detection." In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*, 1668–78. Florence, Italy: Association for Computational Linguistics. doi:10.18653/v1/P19-1163.

Saunders, Benjamin, Julius Sim, Tom Kingstone, Shula Baker, Jackie Waterfield, Bernadette Bartlam, Heather Burroughs, and Clare Jinks. 2018. "Saturation in Qualitative Research: Exploring Its Conceptualization and Operationalization." *Quality & Quantity* 52 (4): 1893–1907. doi:10.1007/s11135-017-0574-8.

Singler, Beth. 2018. "An Introduction to Artificial Intelligence and Religion For the Religious Studies Scholar." *Implicit Religion* 20 (3): 215–31. doi:10.1558/imre.35901.

Sumarni, Woro, Zulfatul Faizah, Bambang Subali, W. Wiyanto, and Ellianawati Ellianawati. 2020. "The Urgency of Religious and Cultural Science in STEM Education: A Meta Data Analysis." *International Journal of Evaluation and Research in Education (IJERE)* 9 (4): 1045. doi:10.11591/ijere.v9i4.20462.

Syarif, Syarif. 2020. "Building Plurality and Unity for Various Religions in the Digital Era: Establishing Islamic Values for Indonesian Students." *Journal of Social Studies Education Research* 11 (2).

Tatyana, Mestechkina, Son Nguyen, and Shin Jin. 2014. "Parenting in Vietnam." In *Parenting Across Cultures*, edited by Helaine Selin , 47–57. Springer.

Tran, Trung, Manh-Toan Ho, Thanh-Hang Pham, Minh-Hoang Nguyen, Khanh-Linh P. Nguyen, Thu-Trang Vuong, Thanh-Huyen T. Nguyen, et al. 2020. "How Digital Natives Learn and Thrive in the Digital Age: Evidence from an Emerging Economy." *Sustainability* 12 (9): 3819. doi:10.3390/su12093819.

Wang, Min, and Zuosu Jiang. 2017. "The Defining Approaches and Practical Paradox of Sensitive Data: An Investigation of Data Protection Laws in 92 Countries and Regions and 200 Data Breaches in the World." *International Journal of Communication* 11.

Wright, James E., and Andrea M. Headley. 2021. "Can Technology Work for Policing? Citizen Perceptions of Police-Body Worn Cameras." *The American Review of Public Administration* 51 (1): 17–27. doi:10.1177/0275074020945632.

Xu, Wei, Chris Callison-Burch, and Courtney Napoles. 2015. "Problems in Current Text Simplification Research: New Data Can Help." *Transactions of the Association for Computational Linguistics* 3 (December): 283–97. doi:10.1162/tacl_a_00139.

Zhou, Tao, Yaobin Lu, and Bin Wang. 2010. "Integrating TTF and UTAUT to Explain Mobile Banking User Adoption." *Computers in Human Behavior* 26 (4): 760–67. doi:10.1016/j.chb.2010.01.013.