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Faculty Artificial Intelligence Readiness in Adventist Higher Institutions of Learning in Sub-Saharan Africa

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Abstract

This study investigated AI readiness using a quantitative descriptive design with a sample of 130 faculty members. Data from a self-constructed questionnaire were analyzed using SPSS 27 and SmartPLS 4.0 for statistical treatment. Anchored on grit theory, the results show that the faculty members have a high level of AI readiness in terms of wellbeing and mental health, changing skill requirements, job automation and displacement, and low level of privacy issues. The independent samples t-test conducted to compare the AI readiness of faculty members aged 18 – 44 years and 45 – 64 years showed that younger faculty members were more ready for AI technologies than older faculty members. The Mann-Whitney U-test results and Cohen's effect size revealed a significant difference in AI readiness for Protestants and non-Protestants, with Protestants having a higher level of readiness than their counterparts. On gender, the females had a higher level of AI readiness than the males. In terms of educational levels, postgraduate degree faculty members had a higher level of AI readiness than those with up to bachelor's degrees.

Keywords: Artificial intelligence, AI-readiness, faculty, Adventist institutions, higher education

Introduction

According to International Business Machines Corporation's (IBM) doubling knowledge curve, human knowledge doubles every 12 hours (Rompies & Hakh, 2023). It took Facebook two years to reach one million users, yet Instagram took two and a half months, and ChatGPT took just five days (Bessen, 2019). Higher education institutions have been and will continue to be equally affected. Koch (2023) affirmed that of all the notable generative AIs such as Large Language Models (LLMs), Google's Bard, Microsoft's Bing Chat, Socrat.AI, Anthropic's Claude, Facebook's LLaMA, Midjourney, Dall-E, and Stable Diffusion, ChatGPT that was launched in November 2022, has revolutionized writing in academic settings (Louw, 2024). The Fourth Industrial Revolution (4IR, 4.0) has been characterized by an exponential rise in technology that uproots all industries worldwide and blurs the lines between the digital, biological, and physical realms (Pereira & Romero, 2017). Philbeck and Davis (2018) pointed out that the fifth of the 14 initiatives in the 4IR includes reshaping the future of education and employment.

OpenAI's ChatGPT in Institutions of Learning

OpenAI's ChatGPT transformative design and its diverse educational uses have ignited educational concerns (Dempere et al., 2023). Artificial intelligence (AI) is not a new concept. It has been used for decades in various applications, including composing music, driving cars, and even hacking consumer databases. Moreover, AI has resulted in faster enrollment, improved student services, classroom enhancements, research assistance, and increased student retention. Artificial intelligence can be used in classroom management and learning environments.

Adaptive learning

An important aspect of AI in education is that it promotes personalized teaching and learning. Artificial intelligence has changed the way teachers teach and students learn. According to van der Van der Vorst and Jelicic

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(2019), adaptive AI learning attempts to incorporate all aspects of testing, teaching, learning, and practice into the adaptive learning system to facilitate students' learning. The system can collect student learning behavior data (Cui et al., 2019), plan the optimal learning path for students based on an analysis of student abilities, and complete the closed-loop learning process by pushing learning content as online teaching videos. If problems are encountered and cannot be solved after class study, the human-computer interaction technology provided by AI can assist teachers in answering questions for students online. In recent times, many companies provide adaptive learning systems, such as DreamBox Learning (Grams, 2018), BYJU'S (Tripathy & Devarapalli, 2020), and IBM Watson Education (Russo-Spena et al., 2019), which are relatively mature companies with adaptive learning systems. Teachers apply the systems in class to improve classroom teaching effects. BYJU'S fully integrates online lectures and exercises and combines teachers' explanations with animations to explain difficult-to-understand science concepts through animation scenarios to facilitate students' understanding.

AI and Students with English Language Issues

According to Li et al. (2020) in a large class where teachers cannot conduct one-to-one oral training, speech recognition and semantic analysis technology are widely used in English teaching. They assist teachers and students in one-to-one oral practice and correct students' wrong English pronunciation. Duolingo provides multilingual learning through the game mode, focusing on customized learning, and has been used in English teaching to improve the quality and effectiveness of English teaching.

Teaching Evaluation

How does AI assist teachers with heavy workloads— question preparation, scoring, performance evaluation, and test-paper analysis? According to the literature (Li et al., 2020; Rahim et al., 2024), AI technology will do the following: 1) generate exam questions, 2) automatically correct assignments and test papers, and 3) correct homework and test papers. AI in education can reduce the burden on teachers and make them more focused on humanistic care. Currently, a significant portion of teachers' time is dedicated to grading homework and examination papers. These repetitive tasks occupy teachers' teaching and research time and teacher-student interaction time. Artificial Intelligence technologies such as image recognition, prediction systems, and computer vision are the answer. This makes the evaluation process more scientific, and the evaluation results are more accurate.

Image recognition technology helps teachers free themselves from the heavy work of correcting homework and scoring (Li et al., 2020). It can also detect blank and suspected identical papers, saving teachers' working time. According to Chen and Li (2018), e-raters can accurately and efficiently assess students' composition, including structure, grammar, and total scores. This increases the effectiveness of teacher assessments and helps students develop their writing abilities.

Smart Campus

Artificial Intelligence plays an essential role in campus management and service. According to Kwet and Prinsloo (2020), AI in education promotes the construction of smart campuses). Facial recognition, text recognition, human body recognition, voice interaction, and other AI technologies provide technical support for constructing smart campuses. Face-recognition, hearing, and sensing technologies have been applied in constructing smart campuses (An & Xi, 2020; Zhou, 2020).

Face recognition technology is used for identity authentication to prevent unauthorized individuals from gaining access to restricted areas (Afra & Alhajj, 2020). At the same time, face recognition can also avoid the phenomenon of changing cards and fraudulent use of other people's certificates, thus ensuring campus safety (Zhou, 2020).

Face recognition technology can also be used to borrow and return books in the library (Upala & Wong, 2019), complete identity verification through facial information, and realize autonomous borrowing and return of books through book lending and returning machines, which improves the efficiency of library work and saves labor costs. Infrared fences can be installed on the school wall to monitor whether outsiders or students leave the school over the wall. When someone touches the infrared, the triggered alarm information and on-site photos captured by the camera are sent to the relevant person in time to remind the person in charge of conducting on-site surveys or calling the police in time (Muhamad et al., 2017).

Challenges of AI in Education

Despite its advantages, AI presents unprecedented educational challenges (Huang & Hew, 2018). These challenges mainly lie in the following aspects: First, ensuring fairness when applying AI in education is necessary. With the development of AI, developing countries face the risk of exacerbating divisions in education through new technologies. As most AI algorithms come from developed countries, they cannot fully consider the conditions of developing countries and cannot be directly applied (Yu, 2020). The education sector must overcome significant obstacles, such as lacking basic technology and infrastructure, to create basic conditions for AI to improve learning.

Second, there is a need to pay attention to ethical and safety issues in collecting, using, and disseminating data. AI has raised many ethical issues in terms of providing personalized advice to students, collecting personal data, data privacy, ownership of responsibilities, and data feed algorithms (Bodo et al., 2017; Southgate, 2021). Strengthening the supervision of AI technology and its products requires the public to discuss the ethics, responsibilities, and safety involved. Pedro et al. (2019) pointed out the need for comprehensive public policy frameworks to deal with the complexity of technological advancements.

Third, teachers must master new digital teaching skills to use AI to promote appropriate teaching reform. According to Pedro et al. (2019), teachers need to acquire digital skills to use AI in a pedagogical and meaningful manner. For instance, AI in education has been felt in Brazil using the EdTech company Geekie as an adaptive learning platform. Besides, more than 5,000 schools utilize it. Schools in South Africa utilize Daptio, which has deep analytics and offers personalized learning to teachers and students. Moreover, Kenya has utilized M-Shule, since 2016 (Pedro et al., 2019) as a mobile platform loaded with lessons based on the national curriculum delivered via SMS, which adapts to each student's skills and abilities using AI technology. Developers are also confronted with challenges. For example, developers of AI teaching products must understand how teachers work and create a convenient teaching product usage plan for teachers. Are they teaching professionals or education experts? Do they share moral values? (Kim & Kwon, 2023)

Fourth, changes in learning style have higher requirements for students' autonomous learning abilities. Learning in the era of AI will be student-centered, and students will be in the dominant position in learning activities (Chang & Lu, 2019; Fu et al, 2021). Students can generate personalized learning plans based on an intelligent teaching system, independently select learning content, arrange learning progress, and carry out group cooperative learning (Fang et al., 2021; Walkington & Bernacki, 2020). Individualized learning methods have higher requirements for students' self-regulation and self-management levels (Bergamin & Hirt, 2018; Tseng et al., 2019) therefore, teachers should also focus on cultivating students' independent learning ability in the teaching process.

Faculty Artificial Intelligence Readiness

In this study, AI readiness describes the degree to which faculty members of an academic institution are equipped to utilize AI and its packages for increased efficiency and productivity in pedagogical processes. According to Bregman

(2018), the advent and widespread implementation of AI technologies in educational institutions has significant implications for employee relationships. AI readiness is discussed under the following sub-variables: job automation and displacement, changing skill requirements, increased efficiency and productivity, collaboration with AI systems, privacy concerns, employee well-being, and mental health.

Job automation and job displacement

First is the displacement and automation of jobs aimed at increasing efficiency and productivity in pedagogical processes. Bessen (2019), in consonance with Hatzius et al. (2023), affirmed that AI replacing human jobs is a mortal fear and would automate routine and repetitive tasks, freeing up faculty members to concentrate on more intricate and creative aspects of their work. Meanwhile, Peters (2016) asserted that 'there will be technological unemployment' (p. 1). Regarding the detrimental effects of AI on job automation and displacement, the literature (Brynjolfsson & McAfee, 2014; Frey & Osborne, 2017; World Economic Forum Boston Consulting Group, 2018) has raised concerns about job displacement because the automation of some roles may result in employment instability, which will have an impact on relationships and employee morale at work. Agrawal et al. (2022), in consonance with Rotman (2023), opined that unemployment is inevitable among workers whose job security is based on this expertise.

Change in skill requirements

The second aspect of AI in universities is the change in the skill requirements. On the positive impact, Manyika et al. (2017) noted that AI would create a demand for new skills such as data analysis, programming, and AI system management, providing opportunities for upskilling and professional growth. These new skills can increase efficiency and productivity. On the negative impact, Chui et al. (2016) submitted that employees who struggle to adapt to these changing skill requirements may feel left behind, leading to a potential divide between those with and without relevant skills. Machines can replace human beings in pedagogical processes for efficiency and productivity.

Faculty members are required to have the skills to deal with a new generation, Gen Alpha. This is the first generation in the 21st century (Drugas, 2022). The profile of Gen Alpha is quite different. Gen Alpha anticipates that classroom management will employ tactile, auditory, and visual modalities (Apaydin & Kaya, 2020). They are prone to distractions, are more attached to technology than to humans, and are more prone to loneliness and aggression (Arora et al., 2020; McCrindle & Fell, 2020). They prefer the use of mobile devices, such as smartphones, tablets, and laptops, to access classroom information (Nadeak, 2020) and are unlikely to take a written exam (McCrindle & Fell, 2020). Gen Alpha is vulnerable to psychological and physiological impacts, including cognition (Jha et al., 2019), impaired social and emotional well-being from cyber threats, and addiction (Ophir et al., 2020), and the list is growing.

Social media have numerous effects. It alters brain plasticity (or neural wiring), cognition, sleep disturbances, and obesity (Jha et al., 2019). It delays the development of microstructures in cortical brain regions and reduces brain tissue density, leading to deficits in cognition (Takeuchi et al., 2016). Using such eroding devices leads to more screen time, further elongating the exposure to blue light-emitting diodes, leading to less production of melatonin hormone (or sleep-producing hormone) and disruption of the sleep-wake cycle (Figueiro & Overington, 2016). AI readiness means that the faculty must learn skills in handling brain issues to experience increased efficiency and productivity as they collaborate with the AI systems.

Privacy Concerns.

The third aspect relates to privacy issues. AI technologies will enhance security measures, protect sensitive information, and ensure data privacy (Acquisti & Varian, 2005). A negative aspect is the rise of surveillance and data privacy, potentially eroding employee trust if

not managed transparently (Culnan & Williams, 2009).

Universities know the intrinsic value of the data they gather and retain (Borgman, 2018). However, they face unanticipated difficulties in managing such data in ways that strike a balance between accountability, openness, and safeguarding intellectual property, academic freedom, and privacy. The information is utilized for faculty evaluation, learning analytics, research, and delicate issues. Privacy-related challenges include open-access policies, data usage, misuse, cyber risks, and data curation for privacy protection.

Faculty Well-Being and Mental Health

Finally, there are the aspects of faculty well-being and mental health, which are other aspects of AI. Artificial Intelligence will monitor and manage workloads, help prevent burnout, and promote a healthier work-life balance (Laumer et al., 2016). AI-powered chatbots can provide faculty with on-demand mental health support, offering resources, guidance, and assistance during times of stress (Abd-Alrazaq et al., 2019). Moreover, AI scheduling will assist in creating flexible work schedules, accommodating faculty members' preferences, and contributing to a better work life.

In addition, artificial intelligence can analyze individual preferences and work patterns to personalize the work environment, potentially leading to increased job satisfaction (Rasmussen et al., 2024). The negative impact of this aspect is the pressure to constantly adapt to AI-related changes coupled with concerns about job security. They predispose faculty members to stress, which negatively impacts their mental health. A related issue is the acceptance of robots. Anthropomorphizing robots may make them appear creepy (Mirnig et al., 2018). AI systems will assist faculty members in managing their well-being and mental health to increase efficiency and productivity in terms of academic output.

The Theory - Grit

Joseph (2015) promoted the idea that positive psychology must be used to support human flourishing in institutions of higher learning in terms of health, education, and daily life. In this study, the grit theory was used. The grit trajectory moves from the thoughts of Galton, Cox, and William James to Angela Duckworth (Eskreis-Winkler et al., 2014). According to Angela Duckworth (Duckworth et al., 2007), grit is perseverance and passion for long-term goals and has been viewed as a key predictor of success beyond Intelligence Quotient.

Short Grit Scale (Grit–S) has been administered in education and the military (Duckworth, 2016), medicine, science, and competitive sports (Maddi et al., 2012), to collegiate students (Akos & Kretchmar, 2017; Muenks et al., 2017), in sports (Crane et al., 2020) in engineering, healthcare (Hill et al., 2016; Hodge et al., 2018; Schimschal et al., 2020). All tests demonstrated internal consistency, test-retest stability, and convergent and discriminant validity (Duckworth & Quinn, 2009).

Grit encompasses non-cognitive or soft skills for economists (Bliss & Jacobson, 2020), personality traits for psychologists, and character traits for educators (Dweck et al., 2014). It has often been studied in relation to courage, conscientiousness, excellence, resilience, and optimism. It is envisaged that faculty members will have the ability to grow amidst obstacles when circumstances are filled with failure and are less than ideal (Clark et al., 2019). Besides, they will display tenacity and personal effort (Duckworth, 2016) in learning AI systems, continue to work despite temporary setbacks, and maintain effort and interest over the years despite failure, adversity, and plateaus in progress (Nemmi et al., 2016). Moreover, they will also dedicate effort to build skills and make them productive (Duckworth, 2016; Sudina et al., 2021), strive to fulfill their purpose, and show excellent moral character (Dhiman, 2020; Perlis, 2013). Grit makes them sustain progress over time, complete tasks (Dhiman, 2020), strive for accuracy (Sigmundsson et al., 2020), and have

a growth mindset (Braund et al., 2020; Tewell, 2020). Furthermore, faculty members will have the ability to bounce back from adversities (Caton, 2020; Zolli & Healy, 2012), remain calm during stressful life events (Caza et al., 2020; Lamberton et al., 2019), and persist in the face of difficulty until the end (Arya & Lal, 2018; Dale et al., 2018). They will remain motivated, and face seemingly inescapable challenges and failures, and religious or spiritual practices (Loftus et al., 2020) in pedagogical processes.

There is a dearth of literature on AI readiness among faculty members in faith-based institutions in sub-Saharan Africa. This study specifically addresses the methodological (Alves et al., 2019), research design (Hayes, 2018; Miles, 2017), and theory application gaps. This study aimed to fill the gaps.

Research Questions

This study aimed to determine the extent of AI readiness among faculty members in Seventh-day Adventist higher learning institutions in sub-Saharan Africa. Specifically, this study sought to address the following questions.

1. What is the level of Artificial Intelligence readiness among faculty members in Adventist higher learning institutions in sub-Saharan Africa in terms:
    a. Job automation and job displacement
    b. Changing of skill Requirements.
    c. Privacy Concerns
    d. Employee Well-being and Mental Health
2. Is there a significant difference in the level of AI readiness when a personal profile is considered in terms of age, gender, and educational attainment?

The study tested the following null hypothesis: There is no significant difference in the level of AI readiness when personal profile is considered in terms of age, gender, and highest educational attainment.

Methodology

Research Design

This quantitative study employed a correlational research design. The design measures and evaluates the variables of the study. It recognizes trends and patterns in data and establishes whether the relationships are positive or negative. Descriptive and inferential statistics were used to analyze the relationships by applying partial least squares structural equation modeling (PLS-SEM-4.0). This research design attempts to understand the relationships occurring naturally between variables (Hayes, 2018). In this study, AI readiness was sought and how it related to personal profiles in terms of age, sex, and educational level of faculty members.

The Population, Sample, and Sampling Techniques

This research involved faculty members working in higher institutions of learning within the three Seventh-day Adventist Church divisions in Africa: East-Central Africa Division, West-Central Africa Division, and Southern Africa-Indian Ocean Divisions. The category of institutions was Level C—institutions that grant only baccalaureate degrees and institutions that grant graduate degrees. From the Seventh-day Adventist Office of Archives, Statistics, and Research (ASTR) (2024), the General Conference of Seventh-day Adventists operates 118 tertiary institutions with an enrollment of over 141,115 learners.

As of November 15, 2023 (Office of Archives, Statistics, and Research, 2024), there are seven accredited institutions in the East-Central Africa Division (ECD). Likewise, there are six accredited institutions in the Southern Africa-Indian Ocean Division (SID) and five accredited institutions in the West-Central Africa Division (WAD). Purposive sampling was used to select one accredited institution from each division (ECD, SID, and WAD). The selection

criteria were based on easy accessibility, contact with institutional leadership, and ethics clearances. Stratified random sampling was used to obtain a sample from the population of faculty members through the Human Resource Office (HR) of the institutions.

This study used a sample size of 130 participants. The eligibility criteria of participants included (1) regular employees, (2) employees who have experienced working from home and office, (3) currently employed as faculty members or level of Head of Department or Dean, (4) aged between 18 and 64 years, (5) whose education is above a bachelor's degree, and (6) any religious affiliation. The participants were those exposed to teaching, research, and service pressure. Secondly, participants came from academic institutions offering baccalaureate and graduate programs in Category C. Table 1 shows the distribution of the respondents' demographic profiles.

Table 1: *Demographic Profile of the Respondents*

Profile	Variable	Frequency	Percent
Sex	Male	91	70.0
	Female	38	29.2
Age	18 – 44 years	67	51.5
	40 - 65 yrs. Old	63	48.5
Education	Up to Bachelors	39	30.0
	Post Grad. Level	90	69.2
Religious Affiliation	Protestant	88	67.7
	Catholic	32	24.6
	Muslim	10	7.7

NB: Most Universities are required by the government to have multi-religious representation in their faculty.

Instrumentation

Self-constructed questionnaires on AI readiness were developed. The questionnaires were subjected to external and internal validation by experts and statistical processes. The results showed that the variables had an acceptable range of reliability.

Faculty AI Readiness (F-AIR). Faculty AI readiness refers to the readiness of AI and its packages in universities. As indicated, the F-AIR tool was self-constructed and consisted of five sub-variables with five items namely job automation and job displacement, changing skill requirements, privacy concerns, well-being and mental health. The items had a Cronbach's alpha reliability of 0.520. Although this Cronbach alpha is considered poor reliability due to using a homogenous sample, can be used still.

Ethical Considerations

Ethical approval for this study was obtained from the Adventist University of Africa International Scientific Ethics Review Committee (AUA-ISERC (Reference: AUA/ISERC/12/12/2023). A research license was obtained from the National Commission for Science Technology and Innovation (NACOSTI). NACOSTI was used for institutions in Kenya and as a measure for countries that have yet to have a similar agency. Additionally, permission was sought and obtained from the Seventh-day Adventist leadership at the Unions and Conferences to gather data from universities. Confidentiality and anonymity of the participants were ensured.

Results and Discussion

The Faculties' Level of AI Readiness

The results demonstrated that faculty members exhibited a high level of readiness for AI and its packages in universities for all sub-variables (see Table 2). In ascending order, faculty members indicated a high level of readiness for Well-being and Mental Health (M = 3.06, SD = .644). They are ready to change their skill requirements (M = 2.88, SD = .384) and ready for job automation and displacement (M = 2.79, SD = .353). This implies that faculty members view AI technologies positively.

Table 2: *Faculty level of AI Readiness*

Sub-variable	M	SD	Scaled response	Verbal Interpretation
Job automation and displacement	2.96	0.35	Agree	High
Changing of skill Requirements	2.88	0.38	Agree	High
Privacy concerns	1.79	0.49	Disagree	Low
Well-being and Mental Health	3.06	0.64	Agree	High
Overall AI-Readiness	**2.69**	**0.46**	**Agree**	**High**

Scoring system: 4:00 – 3.50= Strongly Agree=Very High; 3.49 – 2.50= Agree=High; 2.49 -1.50=Disagree= Low; 1.49 – 1.00= Strongly Disagree=Very low.

Job automation and displacement. Regarding job automation and displacement, faculty members had a high level of job displacement (M = 2.96, SD = .35). This means that faculty members are ready to face technological unemployment because of job automation and appreciate having to concentrate on more intricate areas of work. Since AI handles repetitive duties, they will have reduced burnout because of job automation, have job insecurity resulting from job automation, and use humanoid robots as graduate assistants.

These results agree with those reported in the literature (Bessen, 2019; Hatzius et al., 2023; Peters, 2016). Regarding the detrimental effects, Bughin et al. (2018) raised concerns about job displacement since the automation of some roles may result in employment instability, which will have an impact on relationships and employee morale at work. Agrawal et al. (2022) in consonance with Rotman (2023), opined that unemployment is inevitable among workers whose job security is based on such expertise.

Changing of skill Requirements. Concerning the change in skill requirements, the faculty members indicated a high level (M = 2.88, SD = .38). This means that faculty members are ready to mentor an emerging digital generation to utilize relevant AI technologies in the classroom. The results agree with the literature. On the positive impact, Manyika et al. (2017) noted that AI would create a demand for new skills such as data analysis, programming, and AI system management, providing opportunities for upskilling and professional growth. Workforce transitions will occur at the time of automation. On the negative impact, Chui et al. (2016) submitted that employees who struggle to adapt to these changing skill requirements may feel left behind, leading to a potential divide between those with and without relevant skills.

Faculty members must be prepared to engage with Gen Alpha, who are drawn to entertainment, gaming, and peer connections. Even in education, their lives center around technology (Arora et al., 2020). Gen Alpha might pose a challenge because they are characterized by the following: they prefer using mobile devices to access classroom information (Nadeak, 2020) and are unlikely to take written exams (McCrindle & Fell, 2020). Additionally, they expect classroom management to employ tactile, auditory, and

visual modalities (Apaydin & Kaya, 2020) and exhibit more narcissistic tendencies (Reyes et al., 2021). They are so attached to technology that even two hours spent not using electronics might cause withdrawal symptoms, including loneliness and aggression (Arora et al., 2020). Faculty members must be ready to manage these learners as they enter university.

Privacy concerns. Privacy concerns, however, had a low level of AI readiness (M=1.79, SD=.49). This means that faculty members are not ready to surrender their private information to AI technologies, allowing AI technologies to spy on corporate information or even pay hefty fines for AI restrictions. Negative aspects exist, such as increased surveillance and data privacy concerns, which could undermine trust among employees if not handled transparently (Culnan & Williams, 2009).

These results are consistent with those reported in the literature. Most Americans still feel uneasy with the government using their data, with numbers increasing from 64% in 2019 to 71% in 2023 (McClain et al., 2023). An earlier study by Rainie (2018) observed that about seven in ten American adults (69%) indicated worry about privacy and the use of their personal information, and 91% of Americans 'agreed' or 'strongly agreed' that people had lost control over how personal information was collected and used by all types of entities. In addition, 80% of social media users said they were concerned about advertisers and businesses accessing the data they shared on social media platforms, and 64% said that the government should do more to regulate advertisers.

Well-being and Mental Health. Concerning this aspect, the faculty members indicated a high level (M = 3.06, SD = .64). They are ready for AI in connection with mental health and wellbeing. The results agree with the literature. According to a study by Laumer et al. (2016), AI will be used to monitor and manage workload, help prevent burnout and promote a healthier work-life balance. AI-powered chatbots can provide employees with on-demand mental health support, resources, guidance, and assistance in times of stress (Abd-Alrazaq et al., 2019).

Moreover, AI scheduling will assist in creating flexible work schedules, accommodating employees' preferences, and contributing to a better work-life balance (Lambert & Keegan, 2018). Artificial intelligence can analyze individual preferences and work patterns to personalize the work environment, potentially increasing job satisfaction (Rasmussen et al., 2024). The negative impact of this aspect is the pressure to constantly adapt to AI-related changes, coupled with concerns about job security. They predispose employees to stress and negatively affect their mental health. A related issue has to do with the acceptance of robots. Table 3 shows faculty AI readiness and age.

Faculty AI-Readiness and Personal Profile - Age

An independent samples t-test was conducted to compare the AI readiness of faculty members aged 18-44 years and 45 – 64 years. The results is shown in Table 3.

Table 3: *Faculty AI Readiness and Age*

	Age			Levene's Test for Equality of Variances		t-test for Equality of Means						
		M	SD	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
											Lower	Upper
AI Readiness	18-44	2.73	.23	3.98	.048	2.32	126.48	022	.096	.041	.014	.179
	45-64	2.63	.24									

Table 3 indicates significant differences (126.48 = 2.32, p = 0.02) in the mean scores for 18–44 years (M = 2.73, SD = 0.23), which were higher than those of 45 – 64 years (M = 2.63, SD = 0.24). The magnitude of the difference in the means (mean differences = 0.097, 95% CI: 0.06 – 0.75) was significant. Hence, H_1 is not supported. This means younger faculty members are more techno-savvy and AI technologies than their counterparts. The implication for institutions is to train younger faculty and encourage older faculty to learn AI technologies.

Difference in AI-Readiness by Religious Affiliation - Protestants and Non-Protestants

An investigation was conducted into faculty AI readiness and personal profiles in terms of religious affiliation (Table 4). Mann-Whitney is used for data that is not normally distributed, especially when comparing two groups with either ordinal or continuous data that is non-normal. Instead of comparing means, as in the case of the independent sample, the t-test of the two groups, as in the case of the Mann-Whitney U test, compares the medians because the data are ordinal or non-normal. The test examined the differences between Protestants and Non-Protestants.

Table 4: *Two-Tailed Mann-Whitney Test for AI-Readiness for Protestants and Non-Protestant Faculty Members*

	Mean Rank				
Variable	Protestant	Non-Protestant	U	z	p
AI -Readiness	70.02	56.04	1450.50	-1.990	.047

The Mann-Whitney U-test was used to evaluate the difference between AI readiness and the religious affiliation (Protestants and Non-Protestants) of faculty members. Cohen's effect size formula, r = z/□130 (Brydges, 2019), was used to determine the effect size. The results of the test revealed a significant difference in AI readiness between Protestants (Median = 2, n = 88) and Non-Protestants (Median = 2, n = 42), U = 1450.50, z = -1.99, p = .047, r = -0.17. The relationship between AI readiness and religion is significant. Hence, the hypothesis is supported. The literature (Reed, 2021; Tran & Nguyen, 2021) points out that numerous religious groups accept AI.

Difference in AI-Readiness by Gender

To evaluate the difference between AI readiness and the sex of the faculty members, the Mann-Whitney U-test was used.

Table 5: *Two-Tailed Mann-Whitney Test for AI-Readiness and the Gender of the Faculty Members*

	Mean Rank				
Variable	Male	Female	U	z	p
AI -Readiness	58.69	80.11	1155.00	-2.98	.003

The test revealed a significant difference in AI readiness for Males (median = 2, n = 91) and Females (median = 2, n= = 8), U = 1155.00, z = -2.98, p = .003, r = -0.26. Hence, the hypothesis is supported. The relationship between AI readiness and gender was significant, although the effect size was small. This indicates that sex has some influence on AI readiness, with females demonstrating higher AI readiness than males. The findings contradict Schwesig et al. (2023), who found that male participants were more likely to utilize AI than their female counterparts. These results contribute to the ongoing debate regarding how gender predicts AI use (Nelson, 2016).

Difference in AI-Readiness by Highest Educational Attainment (HEA)

The Mann-Whitney U-test was used to evaluate the difference between faculty members' AI readiness and HEA.

Table 6: *Two-Tailed Mann-Whitney Test for AI-Readiness by Educational Attainment*

Variable	Mean Rank		U	z	p
	Up to Bachelors	Post Graduate Level			
AI - Readiness	59.54	67.37	1542.0	-1.09	.272

The test revealed a significant difference in AI readiness for faculty members with up to a bachelor's degree (median = 2, n = 39), postgraduate level (Median = 2, n=90), U = 1542.00, z = -1.09, p = .27, r = 0.02. Hence, the hypothesis is supported. There is a significant difference between AI readiness and HEA. This indicates that HEA contributes to AI readiness, with postgraduate faculty demonstrating higher AI readiness compared to those with a bachelor's degree or less. Faculty members at the postgraduate level appear better equipped for AI due to the numerous assignments that involve AI. Given the increasing workloads and competing demands for teaching, research, and service (Zainab et al., 2019), faculty would be more prepared to seek assistance from AI technologies.

Conclusion

Faculty members in Seventh-day Adventist higher institutions in sub-Saharan Africa are ready for artificial intelligence use, except for privacy issues. Younger faculty members are better prepared for AI technologies than older faculty members. Protestants and non-Protestants differed significantly in their level of AI preparation. Protestants are more prepared than non-Protestants. In terms of gender, women were more prepared for AI than men. Faculty members with Master's and Doctoral degrees were more prepared for AI than those with only bachelor's degrees.

Limitations of the Study

This study is faced with limitations. First, the fact that this study is solely on the faculty members in Africa, might have failed to capture the leading technical disparities where with the development of AI, developing countries face the risk of exacerbating the divisions in education by new technologies. Secondly, the faculty might have lacked the basic technology and infrastructure to be able to relate well with the subject under study.

Recommendations

The study recommends that the leading institutions embrace AI technologies in the pedagogical processes. Secondly, the faculty to undergo orientation to appreciate its utility to the benefit of learners and themselves. Since the faculty members were unready to surrender their private information to AI technologies to spy on corporate information, or even pay hefty fines for AI restrictions, the Administration could establish an office for Data Privacy

and Management. Mental health professionals would use the results and conduct contextualized training to offer skills to employees in resolving psychological disturbances and other conflicts that arise from AI addiction and complications.

For future research, a multidisciplinary study would help provide more insight into this phenomenon. Further research using the same variables with more faculty and university staff is recommended. A qualitative study would be ideal because people's experiences cannot be limited to numbers (quantitative).

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