The Use of Artificial Intelligence in Tanzania's Higher Education: Instructors' Perceptions and Experiences at TPSC

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Abstract

The study investigated instructors' perceptions and experiences regarding using artificial intelligence tools in higher education (HE). A Convergent parallel mixed method was employed to gather data. Descriptive statistics were used to analyse survey data, while thematic analysis was employed for interview data. Findings reveal positive perceptions of instructors' use of Artificial Intelligence tools in Higher Education, albeit with some reservations noted. However, awareness of AI tools among instructors varies significantly. While instructors frequently use AI for writing, concept generation, and plagiarism checking, tasks like assessment generation, grading, and student tracking are often overlooked due to the lack of intelligent tutoring systems and similar tools to support such activities. Obstacles limiting the use of AI found were limited access to appropriate AI tools, insufficient awareness and training, inadequate infrastructure to support AI tools, and a lack of knowledge and relevant skills among instructors. The study recommends that proper training should be carried out to increase awareness of and ability to use AI tools among instructors. Additionally, institutions should invest more in AI technologies to enable enhanced access for their instructors.

Keywords: *Artificial Intelligence (AI), Artificial Intelligence tools, Instructors' Perceptions, Higher Education (HE)*

1.0 Introduction

Artificial Intelligence (AI) is permeating nearly every part of our technological world today. Smart devices that users interact with in the cause of performing their daily activities or seeking services are integrated with Artificially Intelligent technology. It is also possible for some users to unwittingly use AI in one way or another. For example, the use of biometric features like facial recognition and fingerprints when unlocking electronic devices, text editing using apps like Grammarly, chatbots like ChatGPT, and virtual digital assistants like Siri and Cortana. Many disciplines have had to incorporate AI. Similarly, educational institutions are now adopting and using AI technology to a large extent (Chen *et al*., 2020). However, AI prevalence is predominant in developed as opposed to developing countries (Zhang et al., 2023). Likewise, Tanzania has not fully exploited the benefits of these technologies. Pedró *et al*. (2019) aver that some educational technology companies in developing countries like Uganda, South Africa, and Nigeria have integrated only certain aspects of AI in education to create educational contents for students. These companies include SkoolDesk, Siyavula, Virtual Learning Africa, and TopDog.

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AI brought significant changes in education; for instance, from using traditional methods of teaching to the use of intelligent tutoring systems, creating smart content, and enabling collaborative learning (Saaida, 2023). AI has enabled customised or personalised learning for students, which has enhanced learning efficiency and helped instructors gain insights into students' progress and become more innovative in their classrooms. Additionally, AI resulted in the automation of essential tasks like assessment generation, among others (Crompton & Burke, 2023).

Although AI has great potential in the Higher Education (hereafter HE) sector, its effective and appropriate use does not entirely depend on technology, but on the willingness of instructors to effectively use and manage it. Without proper guidance, even the most advanced AI technology may not achieve its full potential (Zhang & Villanueva, 2023). Therefore, instructors' expectations, opinions, and experiences need to be incorporated for the successful application of AI in HE (Zhang et al., 2023), and this understanding forms the bedrock of this study. The study had the following objectives: (i) To identify instructors' perceptions regarding AI use in HE, (ii) To investigate the pedagogical application of AI tools by HE instructors and lastly (iii) To analyse the challenges affecting the use of AI at TPSC.

2.0 Literature Review

2.1 Application of AI in Higher Education

Popenici and Kerr (2017:2) define AI as "computing systems that can engage in human-like processes such as learning, adapting, synthesising, self-correction, and use for complex data processing tasks". In this study, AI in HE is defined, per Chiu *et al*. (2023), as the use of AI tools, for instance, intelligent tutoring systems, chatbots, and the automated assessment of all modes of digitised artifacts that support and enhance teaching and learning. The integration of these tools in education has benefited both instructors and students. Baker and Smith (2019) have grouped these tools into three main categories, namely learner-facing, teacher-facing, and system-facing AI tools. This study focuses on the second category, i.e., teacher-facing AI tools. The aforementioned authors describe teacher-facing AI tools as software that can aid teachers in reducing their workload by automating tasks. AI-powered educational tools, like the chatbot used at George Washington University, exemplify this concept by automating some administrative tasks to improve student services. The chatbot assists in addressing FAQs. It serves more students faster, compared to instructors working manually (Eduwire, 2019).

Al-Badi and Khan (2022) argue that learners have different abilities and paces, hence instruction materials and evaluation should be different for each learner. Using intelligent tutoring systems, instructors can tailor instructional materials to meet the specific needs of each learner, offering personalised one-on-one tutoring in situations where human tutoring is impractical, particularly in large-scale distance education environments (Zawacki- Richter et al., 2019). They can also personalise assessment, allowing learners to be challenged at appropriate levels.

Instructors can use AI tools to generate assessments and conduct evaluations (Ouyang et al., 2022). It is difficult for instructors with large classes to provide timely and rich feedback

from student assessments. Notably, assessments in HE are designed to inform instructors about the individual progress of students and the class as a whole, for them to implement intervention strategies or discern the need for additional support. Integrating AI tools in the process can help instructors provide constructive and immediate feedback (Saaida, 2023). For example, AI tools aid in scoring students using automated essay scoring systems. These tools have, therefore, proven to reduce grading effort and time and provide unbiased assessment, unlike traditional assessment, where Swiecki *et al*. (2022) argue that they face problems such as creation and implementation difficulty, and they show a quick glimpse of how well someone is doing, missing the detailed picture of what they are learning.

AI-assisted writing tools enable instructors to identify errors in vocabulary and grammar. Such tools assist instructors in their writing process, thus enhancing their writing ability (Adams & Chuah, 2022; Pokrivcakova, 2019). Alharbi (2023) identifies four categories of AI-powered writing assistance tools: automated writing tools, automated writing corrective feedback, translators, and GPT-3 automatic text generators. Examples of these tools include Grammarly, Pro Writing Aid, AI Writer, and Textio.

2.2 Challenges Limiting AI Usage by Instructors

AI applications mostly demand high-speed internet and extensive storage capacity (Dhawan & Batra, 2020). High costs associated with digital investment result in inadequate digital infrastructure in many developing regions of Africa. Consequently, HE institutions with limited ICT resources may view AI implementation as a luxury, thereby restricting its utilisation among HE instructors.

While some HE institutions have integrated AI into their operations, others encounter obstacles rooted in unwillingness to depart from traditional practices. This resistance may be attributed to a sense of comfort with existing methodologies and the use of the same materials. Additionally, digital illiteracy among users, characterised by a lack of proficiency in AI technologies, serves as another impediment.

Lack of training and awareness regarding the use of AI may hinder its proper utilisation. For instance, in a study conducted by Chounta et al. (2022), it was found that instructors had limited knowledge about AI and its potential to help them in their teaching. In a study conducted by Khabib (2022), instructors exhibited limited familiarity with AI writing tools; some had no exposure to these tools, while others had minimal experience due to little awareness of their potential.

Similarly, Kim and Kim (2022) found that instructors lack experience and knowhow of incorporating AI tools in the classroom. It is, therefore, crucial to impart users with the requisite skills. This is affirmed by Zhang and Villanueva (2023) who suggest that instructors with AI training possess advanced technological skills, thus improving their preparedness and signifying the promising prospect of AI in HE.

2.3 Instructors' perceptions of the application of AI in Higher Education

Various scholars have discussed different instructors' perceptions regarding the use of AI in HE. Sumakul *et al*. (2022) found that instructors showed positive perceptions and believed that AI tools could help both instructors and students. According to Pisica et al., (2013), the positive aspects of AI implementation in HE are tied to enhancements in the

teaching and learning process, development of student skills and competencies, increased inclusivity, and improved efficiency in reducing administrative costs. Chounta *et al*. (2022) found that instructors had a positive attitude toward AI and perceived it as an opportunity for education. Al-Badi and Khan (2022), on the other hand, showed that instructors and learners have a narrow understanding of AI technologies and personalised learning.

Despite the substantial body of research on AI, in general, there is presently limited research into the perceptions of instructors regarding the use of AI in HE, particularly in Tanzania. This is highlighted by Kim and Kim (2022), who stress that instructors' perceptions of AI utilisation have only been investigated by a few scholars. This is also supported by Lindner et al. (2019), who argue that research on teachers' perspectives on the topic of AI is scarce.

3.0 Methodology

The study employed a mixed-method design, specifically the convergent parallel method, to gain deeper insights into instructors' perceptions and experiences regarding the use of AI in higher education. This approach combined and compared qualitative and quantitative results to address the limitations inherent in each method, providing a more comprehensive understanding of the research topic.

The research was conducted at Tanzania Public Service College (TPSC) across its six campuses: Dar es Salaam, Mbeya, Mtwara, Singida, Tabora, and Tanga. A total of 110 instructors from these campuses were randomly selected to participate in the survey. Additionally, Key Informant Interviews were conducted with 10 instructors to obtain more in-depth explanations of their perceptions and experiences with AI in higher education.

Quantitative data was collected through an online survey generated using Microsoft Forms. The questionnaire utilized a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) to assess respondents' opinions. The collected data was analyzed using MS Excel to generate frequency, percentages, mean, and standard deviation. The interpretation of mean values followed a predefined scale, categorizing responses from "Strongly Disagree" to "Strongly Agree."

For qualitative data, semi-structured interviews were conducted both face-to-face and via telephone to explore instructors' perceptions and challenges in using AI tools. A smartphone and a notebook were used for recording and note-taking. Fifteen respondents were purposively selected based on their expertise in the subject matter and interviewed using a guide containing semi-structured questions. Thematic analysis was employed to analyze the interview data. The researcher organized and reviewed the data, highlighted significant phrases, created codes, and identified recurring themes to extract meaningful insights from the responses. The criteria of interpretation for the mean value were given according to Table 1.

Table 1: Mean Score Interpretation

Range of Values (Mean)	Interpretation
4.21 – 5.00	Strongly agree
3.41 – 4.20	Agree
2.61 – 3.40	Neutral
1.81 – 2.60	Disagree
1.00 – 1.80	Strongly disagree

Source: Adapted from Imsa-ard *et al*., (2021)

4.0 Findings

4.1 Quantitative findings

4.1.1. Background of the Respondents

The demographic profiles of instructors are shown in Table 2. These include gender, education level, and department.

Table 2: Demographic Profile of the Respondents

Basis of classification	Category	Frequency	Percentage (%)
Education Level	PhD	3	3
	Masters	47	44
	Bachelor Degree	55	51
	Diploma	02	2
Department	Secretarial	19	18
	Records	28	26
	Public administration and leadership and Management	60	56
Gender	Male	66	62
	Female	41	38

Source: Field Data (2024)

Table 2 illustrates that (51%) of the respondents hold a Bachelor's degree, (44%) Masters and only a small percentage have PhDs (3%) or Diplomas (2%). The Public Administration and Leadership department is the most represented, with 56% of respondents. Male respondents outnumber female respondents by 62% to 38%.

4.1.2 Instructors' awareness of AI tools used in Higher Education

Figure 1 reveals instructors' awareness of AI tools used in HE. Instructors were required to select different AI tools commonly used in education to measure their awareness.

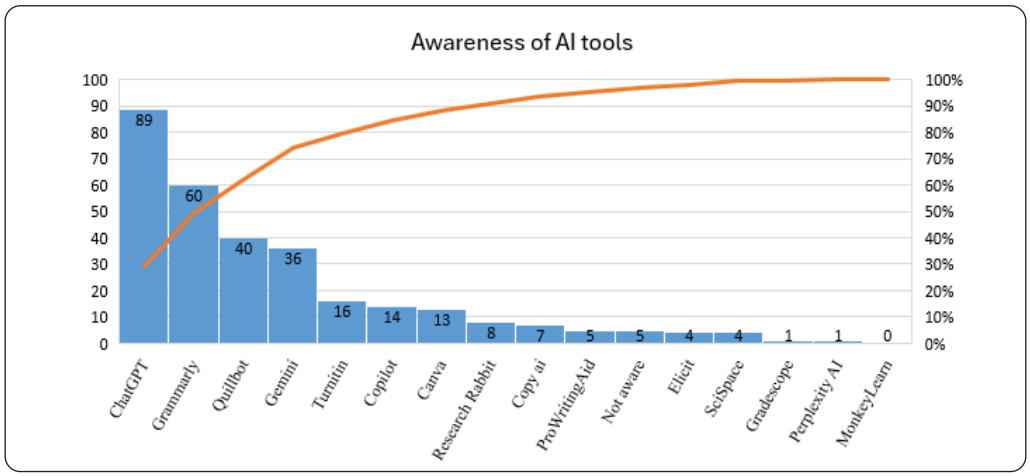

Figure 1: Instructors' Awareness of AI Tools Source: Field Data (2024)

Figure 1 illustrates how the data is distributed in descending order of frequency: ChatGPT, Grammarly, Quillibot, and Gemini are ranked high, indicating strong awareness, Turnitin, Copilot, Canva, Research rabbit, copy.ai, ProwritingAid, elicit, and SciSpace are all ranked lower, indicating lower awareness of these tools, while Perplexity AI, Gradescope, and MonkeLearn are ranked limited. Additionally, fewer instructors are not aware of any of the aforementioned AI tools. The curve illustrates a steep rise driven by the dominance of widely recognised tools, a gradual slope as awareness of less-known tools diminishes, and a final plateau reflecting full population representation.

4.1.3 The pedagogical application of AI tools among instructors

The instructors were required to indicate their practical use of AI tools in HE so as to understand the specific ways in which instructors are implementing these technologies in their teaching processes.

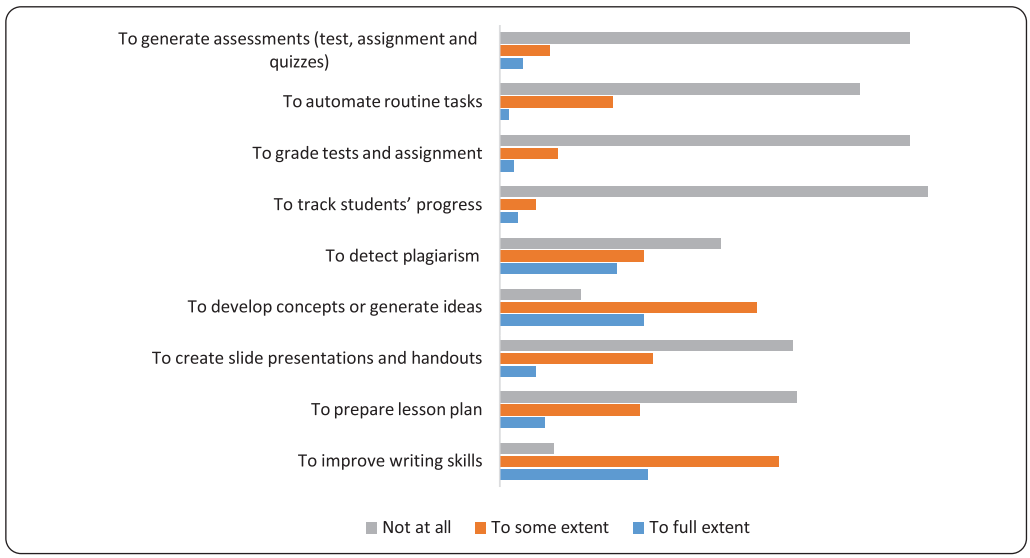

Figure 2: The Use of AI among Instructors Source: Field Data (2024)

It is evident from the study that 30.8% of instructors use AI tools to a full extent to support writing and 57.9% to some extent, while 11.2% do not use AI for this purpose. Instructors employ AI to create ideas, with 29.9% using it extensively and 53.3% using it to a certain degree. Additionally, AI is moderately utilised for activities such as identifying plagiarism, with 54.2% of individuals leveraging these technologies. There is underutilisation of AI tools for tasks like preparing lesson plans (38.3%) and creating slide presentations and handouts (39.8%). Respondents hardly utilise AI for monitoring student progress, with more than 88.8% reporting that they do not use it at all. Likewise, 85% of participants do not use AI tools for assessment while 74.8% do not use them for automating routine tasks. Similarly, 85% of teachers also do not utilise AI tools for grading assignments.

4.1.4 Challenges limiting AI use as perceived by instructors

Table 3 below depicts the obstacles faced by instructors in their use of AI tools in HE.

Table 3: Challenges Limiting the Use of AI Tools in Higher Education

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
1.	Limited access to appropriate AI tools	6 (5.6%)	4 (3.7%)	25 (23.4%)	48 (44.9%)	24 (22.4%)	3.75	1.0288
2.	Lack of awareness of AI tools	10 (9.3%)	5 (4.7%)	19 (17.8%)	43 (40.2%)	30 (28%)	3.73	1.1941
3.	Fear of personal change	8 (7.5%)	29 (27.1%)	37 (34.6%)	24 (22.4%)	9 (8.4%)	2.97	1.0680
4.	Lack of training and exploration of the use of AI technologies	4 (3.7%)	4 (3.7%)	20 (18.7%)	35 (34.6%)	44 (41.1%)	4.04	1.0454
5.	Lack of necessary infrastructure to support the availability of AI technologies	4 (3.7%)	8 (7.5%)	16 (15%)	44 (41.1%)	35 (32.7%)	3.92	1.0562
6.	Technology anxiety on how to use AI tools	9 (8.4%)	24 (22.4%)	29 (27.1%)	31 (29%)	14 (13.1%)	3.16	1.1668
7.	Lack of interest in using AI tools in teaching processes	7 (6.5%)	24 (22.4%)	25 (23.4%)	37 (34.6%)	14 (13.1%)	3.25	1.1418

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
8.	Lack of knowledge and relevant skills on how to use AI tools.	6 (5.6%)	6 (5.6%)	14 (13.1%)	47 (43.9%)	34 (31.8%)	3.91	1.0862
9.	Limited support from college for integration of AI in teaching	2 (1.9%)	6 (5.6%)	19 (17.8%)	46 (43%)	34 (31.8%)	3.97	0.9463

Source: Field Data (2024)

According to Table 3, instructors agreed that obstacles to the use of AI in HE included limited access to appropriate AI tools (67.3%), lack of awareness on AI tools (68.2%), lack of training and exploration to the use of AI technologies (75.7%), lack of necessary infrastructure to support availability of AI technologies (73.8%), lack of knowledge and relevant skills on how to use AI tools (75.7%) and lack of support from college for integration of AI in teaching (74.8%). The mean value of these items was determined to fall between 3.73 and 4.04. On the other hand, instructors were neutral on fear of personal change, technological anxiety on how to use AI tools and lack of interest in using AI tools in teaching processes, with the mean value ranging from 2.97 to 3.25.

4.1.5 Instructors' perceptions of AI use in Higher Education.

Table 4: Instructors' Perceptions of AI Use in HE

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
1.	AI tools will simplify lesson preparation and other teaching activities	5 (4.7%)	2 (1.9%)	9 (8.4%)	59 (55.1%)	32 (29.9%)	4.04	0.9409
2.	Incorporating AI in higher education will enhance students' learning experience	5 (4.7%)	3 (2.8%)	15 (14%)	50 (46.7%)	34 (31.8%)	3.98	0.9998
3.	Integrating AI tools will enrich the quality of teaching	3 (2.8%)	6 (5.6%)	10 (9.3%)	50 (46.7%)	38 (35.5%)	4.07	0.9642
4.	Instructors should receive proper training and support regarding the effective use of AI in education	2 (1.9%)	1 (0.9%)	7 (6.5%)	42 (39.3%)	55 (51.4%)	4.37	0.8071

No.	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Standard Deviation
5.	I would prefer to use AI tools in the teaching process	3 (2.8%)	5 (4.7%)	15 (14%)	54 (50.5%)	30 (28%)	3.96	0.9309
6.	I am willing to embrace AI tools in the teaching process	3 (2.8%)	2 (1.9%)	15 (14%)	57 (53.3%)	30 (28%)	4.02	0.8685
7.	I am willing to invest time and effort in learning AI tools for teaching	3 (2.8%)	3 (2.8%)	8 (7.5%)	63 (58.9%)	30 (28%)	4.07	0.8498
8.	AI will play an important role in higher education	3 (2.8%)	5 (4.7%)	9 (8.4%)	53 (49.5%)	37 (34.6%)	4.08	0.929
9.	My general perception of integrating AI into HEIs is positive	4 (3.7%)	6 (5.6%)	7 (6.5%)	58 (54.2%)	32 (29.9%)	4.01	0.9664

Source: Field Data (2024)

Table 4 renders the perceptions of instructors regarding the integration of AI in HE. The majority (85%) of the instructors agreed that AI would simplify lesson preparation and other teaching activities. Additionally, (78.5%) are positive that incorporating AI in HE will enhance students' learning experience. About (82.2%) are positive that the integration of AI tools will enrich the quality of teaching instructors. Instructors also strongly agree (90.7%) that they should receive proper training and support regarding the effective use of AI in education. Moreover (78.5%) would prefer to use AI tools in their teaching process. The results also showed that (81.3%) were willing to embrace AI tools in their teaching process and (86.9%) were willing to invest their time and effort in learning AI tools. The majority of instructors (84.1%) believe that AI will play an important role in HE. Generally, 84.1% of the instructors have positive perceptions of integrating AI in HE, with a mean score ranging from 3.96 to 4.37. Furthermore, the data for the nine statements are relatively consistent and clustered around the mean, with most values falling within a narrow range of 0.8498 to 0.9664.

4.2 Qualitative findings

Four main themes emerged from the interviews with the instructors, namely familiarity & usage, perceptions of AI, access & challenges, and willingness to adopt AI.

4.2.1 Familiarity and usage

When respondents were asked to describe their familiarity with AI tools, they all agreed that they are familiar with such tools, mentioning chatbots like ChatGPT, and Gemini,

and AI writing assistants like Grammarly. They described using tools for correcting grammatical errors or improving their text. They also mentioned the use of Chatbots to provide customised answers in response to their request. Respondents said AI simplifies the preparation of notes and reduces loads for instructors. Others exhibited awareness of plagiarism tools too.

4.2.2 Perceptions of AI tools

When asked if they prefer using AI in carrying out their duties, instructors agreed that they have a preference for AI. They also recognised the ability of these tools to improve the quality of teaching and reduce the burden on instructors in performing some of their duties. Reflecting on how AI reduces working effort, one participant said,

> *Unlike search engines, which often return numerous results that require users to shift through multiple results in a search for what they want, ChatGPT has eliminated the need for manual review by providing concise summaries that streamline the information-gathering process* (RESP5, September 2024).

However, the majority of respondents were against depending exclusively on AI tools to perform their duties. They believe that AI should only be used as a supplementary tool rather than a primary source of information to curtail overreliance and misinformation.

Additionally, respondents expressed their concern about the ethical implications of using AI. One respondent remarked,

> *I believe students have access to a lot of content outside the classroom. Our role is to fill in the gaps because while they can read the content, they need human interaction to explain concepts, build motivation, and create a passion for the subject which AI alone cannot provide* (RESP1, September 2024).

Respondents proposed that AI tools should be employed with caution and subject to appropriate regulations, citing the risk of students over-relying on such tools for assignments, hence hindering their critical thinking skills, and leading to laziness.

Despite these concerns, respondents acknowledged the potential benefits of AI in enhancing student learning experiences, implying positive perceptions of the use of AI in HE.

4.2.3 Access and Challenges

Respondents reported limited access to AI tools due to subscription costs and the unavailability of other AI tools within the institution, like intelligent tutoring systems. One respondent said,

> *I will use AI tools if they are available. Currently, I am using the ones available for free; however, they have limitations as compared to the premium ones* (RESP4, September 2024).

Several instructors also mentioned that institutions should invest in AI technology for instructors to easily access such tools.

They were asked about the challenges that limit the use of AI, and most acknowledged that they lacked skills, awareness, and training on how to properly use AI tools. Bemoaning lack of skills, one respondent lamented,

> *Lack of specific skills when interacting with AI may cause irrelevant results due to poorly phrased queries, thus one may think it is useless* (RESP7, September,2024).

Many participants emphasised the necessity for instructors to receive proper training and support to effectively utilise AI tools since they lack the appropriate knowledge of the tools and how to properly utilise them.

4.2.4 Willingness to Adopt AI

Despite the reservations they had concerning the use of AI, when the respondents were asked if they were willing to adopt AI and invest their time and efforts in learning how to use AI tools effectively in their teaching**,** all instructors responded in the affirmative.

4.2.5 Discussions

From the findings, it can be concluded that instructor's awareness of the AI tools used in HE varies significantly across the different tools listed. The most recognised AI tools in the findings were Chat GPT, Grammarly, Quillibot, and Gemini. This is, likewise, supported by the findings from the interviews where instructors showed familiarity with tools like ChatGPT and Gemini, and tools commonly used for editing like Grammarly. Instructors exhibited limited awareness of intelligent tutoring systems and AI research tools. This suggests a concentration on writing assistance and language generation tools, with limited awareness of tools for specific tasks like research and assessment. Chen *et al*. (2020) suggest that levels of awareness are influenced by the extent to which these tools are integrated into the daily lives of users. For instance, in Tanzania, HE institutions have not widely adopted the use of intelligent tutoring systems to track students' progress and personise learning to accommodate different learning styles; only a few institutions have integrated some aspects of AI to automate the task of generating and grading assessments. Another determinant for varying awareness levels about AI tools is their popularity. ChatGPT, for instance, is widely known among instructors as it is popular. Lu (2023) confirms that many teachers use ChatGPT to create assignment prompts, questions, and lesson plans across various subjects.

Results have shown that a significant number of instructors use AI tools to support writing, such as grammar checking. Several instructors, too, perceive AI tools as being helpful for concept development and idea generation. On the other hand, the results also showed under utilisation of AI tools in lesson planning and material preparation. The reluctance to use AI tools for these tasks could be due to ethical considerations such as AI-driven decision-making, data privacy, and algorithmic bias (Slimi & Carballido, 2023), and a perceived lack of value. Pokrivcakova (2019) suggests that there is a need to prepare instructors for the application of AI since students are outpacing their instructors in using these technologies (Krašna & Bratina, 2024).

The study found limited access, lack of awareness and training (Zhang and Villanueva, 2023), and lack of necessary infrastructures to support AI tools as the major impediments to the holistic use of AI in HE. These are compounded by the cost of subscription to these tools and institutions not fully equipped with infrastructures to support AI technologies. On the other hand, respondents in the survey remained neutral on lack of interest and technological anxiety concerning the use of AI tools, while interviews revealed a different

perspective. Respondents also disagreed with fear of personal change as an obstacle limiting the use of AI. This could be due to the increased use of electronic gadgets, which has transformed how individuals interact with technology, making it a familiar aspect of daily life rather than a novel experience.

Regarding instructors' perceptions of the use of AI in HE, the study revealed that the mean score for all items measuring perceptions ranges from 3.96 to 4.37, thus indicating a positive perception. This points to strong evidence of the potential of AI to transform HE, corroborating findings from previous research (Sumakul *et al.,* 2022). However, the successful integration of AI will depend on overcoming the obstacles identified in the study.

5.0 Conclusion and Recommendations

In summation, the study led to the conclusion that AI tools are not fully utilised at the TPSC, being mostly used for writing assistance and concept generation. There is, therefore, a need for the expansion of AI adoption in other areas. Besides, instructors are positive towards the use of AI in HE, although they think that AI should not be used in all aspects of teaching as it would hinder the thinking capacity of students and instructors. Additionally, instructors lack basic AI tools to conduct their activities.

Based on the study findings, the researcher recommends the following: first, Higher Education institutions should fill the knowledge gap through increased awareness and training programs to equip their employees with the necessary skills on how to effectively use AI technologies for their successful integration in the classrooms. Second, HEIs should invest in necessary infrastructures to support AI technologies to allow instructors and students to have access to AI tools and to be able to integrate AI into their teaching/learning and other activities like research. Third, institutions should have guidelines that govern the use of AI within their systems.

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