

# Educators' Academic Insights on Artificial Intelligence: Challenges and Opportunities

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**Abstract:** The study on "Educators' Academic Insights on Artificial Intelligence – Challenges and Opportunities" was conducted to gain a deeper understanding of the rapidly evolving phenomenon of AI in education. This research serves multiple objectives. Firstly, it aims to foster awareness regarding the integration of AI into teaching and learning practices by providing clear definitions of AI and explaining key AI-related terms. It also seeks to illustrate AI's diverse applications within a broader context, with a special focus on AI-supported research and learning platforms. Additionally, the study delves into the current discourse surrounding chatbots, contributing to address the central research question. Lastly, this initiative aims to provide valuable recommendations for effectively harnessing AI in education, enhancing the teaching and learning experience. The researchers conducted a review of literature concerning artificial intelligence. They adopted a qualitative method, using open-ended questions to collect feedback from educators globally, including those from the University of Technology and Applied Sciences, Al Musannah, and participants in the online discussion forum at Oxford English Learning Exchange.com. The qualitative data was analysed, leading to the identification of key themes and subthemes derived from the responses of research participants. The study's findings incorporated a wide range of concerns expressed by educators, comprising ten key subthemes. These concerns ranged from doubts about AI's ability to replace human educators and fears of its potential to hinder student development to worries about its hyped popularity and its perceived futuristic nature. Educators stressed the importance of effective AI training while emphasizing the need to prioritize human expertise over excessive reliance on AI. They were also acutely aware of both the advantages and disadvantages of AI, viewing it as both a potential boon and a looming threat. Furthermore, educators recognized the potential for enjoyable experiences with AI and acknowledged the pivotal role of users in determining the extent of AI adoption. Content analysis revealed additional apprehensions, such as concerns about job displacement, AI's impact on critical thinking, teacher frustration in assessing AI-assisted student writing, the use of AI-generated content for assessments, potential erosion of human services, stifling of user and learner creativity by AI, the risk of errors in AI-generated information, opportunities for cheating in exams, and concerns about the overreliance on and overrating of AI platforms. Positively, the findings included an array of opportunities that AI platforms offer. Study participants highlighted various aspects of these opportunities that surpassed their concerns and associated risks. The opportunities are categorized into twenty subthemes: enhancing learner motivation, facilitating template creation, utilizing AI as an educational aid, promoting proper training and fostering positive AI usage, harnessing AI for teaching challenging subjects, enabling personalized learning experiences, offering an interactive tutoring experience, supporting remote learning, facilitating self-study, providing comprehensive educational content overviews, giving instantaneous feedback and evaluation, functioning as search engines and chatbots, enabling content validation, efficiency in terms of cost and time, streamlining material preparation, facilitating skill and language enhancement, promoting familiarity with topics and vocabulary, enabling text-to-speech and speech-to-text conversions, editing multimedia elements, and facilitating content generation.

**Keywords:** AI, Artificial intelligence, Academic insights, Education, Educators, Challenges, Opportunities

## 1. Introduction

With the advance of technology in different forms (Jose, J. and Jayaron Jose, B., 2023), Artificial Intelligence (AI) is revolutionising the world. Artificial intelligence, or AI, which refers to the ability of machines or software to perform tasks that usually require human intelligence, such as tasks like recognizing images, making decisions, and translating languages, has had a profound influence on the global community. As a result, the emergence of Artificial Intelligence has brought forth a range of challenges and opportunities across various sectors, with a particular focus on education. With the advancement of computing technology, the earliest AI initiatives began in the middle of the 20th century, and they experienced steady growth until the introduction of more advanced

AI platforms like Chat GPT, Google AI Platform, Microsoft Azure, TensorFlow, and others. The field of artificial intelligence (AI) is evolving rapidly, and keeping up with the latest developments can be challenging. Just as you become accustomed to one chatbot, another emerges to take the spotlight (MacLean, 2023) as Phillips (2023) highlights the rapid advancement of AI across various fields, with progress measured in days and weeks, not years. According to Huang et al. (2023), AI is playing an increasingly significant role in education, particularly in the field of language education, and its impacts on different spheres of education are under-investigated.

In this paper, the researchers provide a comprehensive examination of different aspects of Artificial Intelligence. It commences with an introduction that offers an overview of AI. Following this, the research problem, objectives, and questions are presented. Building upon this groundwork, the researchers synthesize the main literary sources that served as the foundation for the study. They then provide a concise description of the methodology and research techniques used in their investigation. The findings of the study are subsequently scrutinized and discussed in the context of the research question. Lastly, the researchers conclude by summarising the findings, imparting insights, suggesting potential directions for future research, and offering recommendations based on the findings and the discussion.

## 2. Research Objectives

The specific aim of the study is to gain insights into educators' perceptions concerning the utilization of AI tools in educational settings, with a specific focus on identifying the challenges and opportunities that educators perceive in this regard. In general, the study's primary objective is multi-faceted. Firstly, it seeks to provide a comprehensive definition of AI, incorporating chatbots like Chat GPT, and aims to define key AI-related terminology. In doing so, the study intends to promote awareness of how AI can be effectively integrated into the realms of teaching and learning. Additionally, the study strives to exemplify a variety of AI applications, stretching across both general contexts and specialized research and learning tools.

## 3. Research Question

Based on the research objective, the literature reviewed and the qualitative nature of the study, the following research question was formulated.

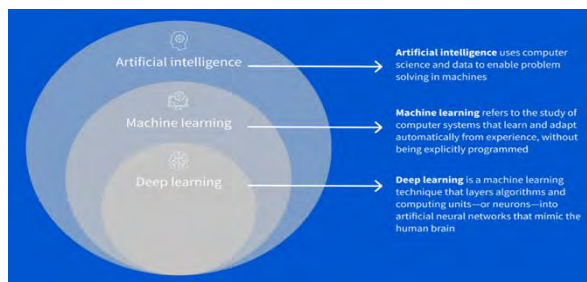
*What are educators' perceptions of the challenges and opportunities of using AI tools in learning and teaching?*

## 4. Literature Review

This section of literature review attempts to achieve the research objectives of defining AI and AI platforms with examples, spanning general and educational contexts. The review highlights the importance and the implications of AI in education,

### 4.1 Definition of AI

AI can be defined as the capacity of machines or software to perform tasks that typically require human intelligence, including visual perception, decision-making, and language translation. AI systems utilize algorithms and machine learning methods to acquire knowledge from data and progressively enhance their performance (Akademisi, 2023). Artificial Intelligence refers to the concept and advancement of computer systems capable of executing tasks that typically demand human intelligence. AI encompasses three primary components: 1) machine learning and 2) deep learning. Machine learning enables computers to learn autonomously, without explicit programming. Deep learning, a subset of machine learning, involves the use of algorithms structured similarly to the logical processes of the human brain, known as artificial neural networks (Coursera, 2023; Figure 1).



**Figure 1: AI, ML and DL (Copied from Coursera, 2023)**

It is equally essential to clarify what AI is not to dispel potential misconceptions. AI is NOT a substitute for human intelligence or expertise. It is not flawless; without meticulous design, testing, and supervision, AI can make mistakes or generate biased outcomes. While AI systems excel in performing specific tasks with great precision and efficiency, they lack the qualities of creativity, intuition, and empathy, which are fundamental for human learning and communication (Akademisi, 2023).

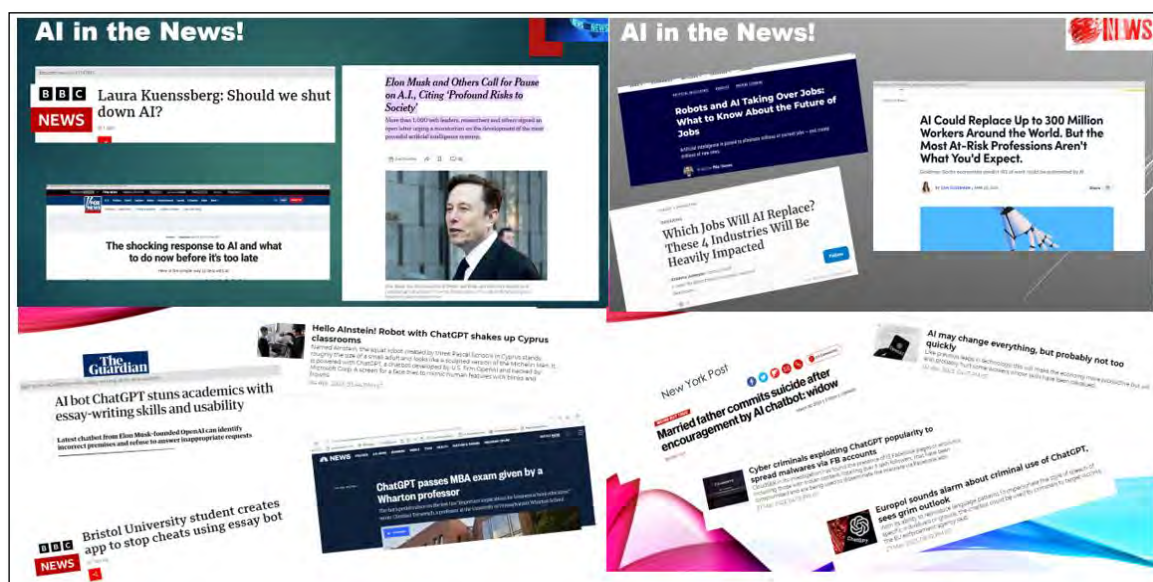
Figure 2 shows a few general examples of AI applications such as Siri, Alexa, TensorFlow, IBM Watson and Open AI, which are well known for their respective functions, assisting people with their everyday reminders, and answering simple to complex questions.



**Figure 2: General examples of AI applications**

#### 4.2 AI as Perceived in the News

Recently, AI has caught attention of almost all news platforms across the globe. While many news headlines highlight the significance of AIs in a positive tone, several of them presents an alarming pessimistic view about AI (Figure 3). The topics of concerns range from enhanced crimes, job loss, and family breakdowns to cheating in exams. Governments, political personalities, or businessmen as Elon Musk are raising their concerns and expressing their recommendations. A few of them suggest shutting down AI while others recommend slowing down the fast process of AI development and application. For an instance, Kuenssberg (2023), the political editor and journalist at BBC doubts whether AI should we shut down or not. Meanwhile, Elong Musk calls for a pause on AI process due to numerous risks it poses to humanity (Metz and Schmidt, 2023). New York Post (Cost, 2023) reads that AI might cause depression, leading some of its users to commit suicide. Furthermore, AI is criminally used to facilitates crimes by spreading malware through social media platforms (HT Tech., 2023). Silverman (2023) wrote that AI might replace about 300 million employees internationally due to AI supported robots (Figure 3). Moreover, in education, Rosenblatt (2023) wrote that AI facilitated written exam could pass the final exam for Wharton school MBA program.

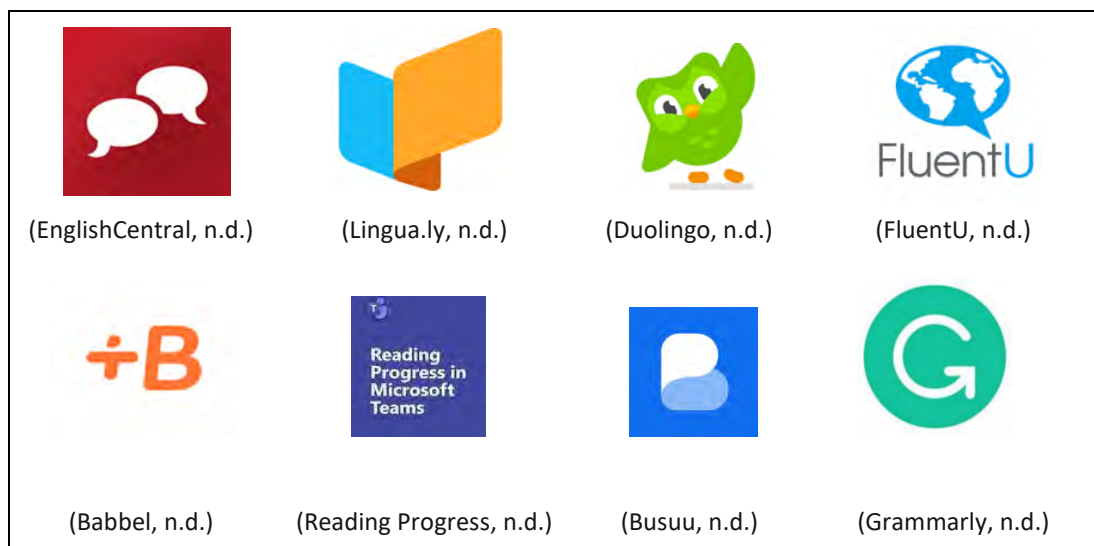


**Figure 3: AI in the news**

The following sections are aligned with the research aim and research question, moving from more general information to more specific literature regarding opportunities and challenges from educators' perspectives.

### 4.3 AI Applications for Learning and Research

While there are many AI applications for accomplishing different functions, many applications are specific to language teaching and learning. A few popular examples are EnglishCentral, Lingua.ly, Duolingo, EfluentU, Babbel, Reading Progress, Busuu and Grammarly (Figure 4).



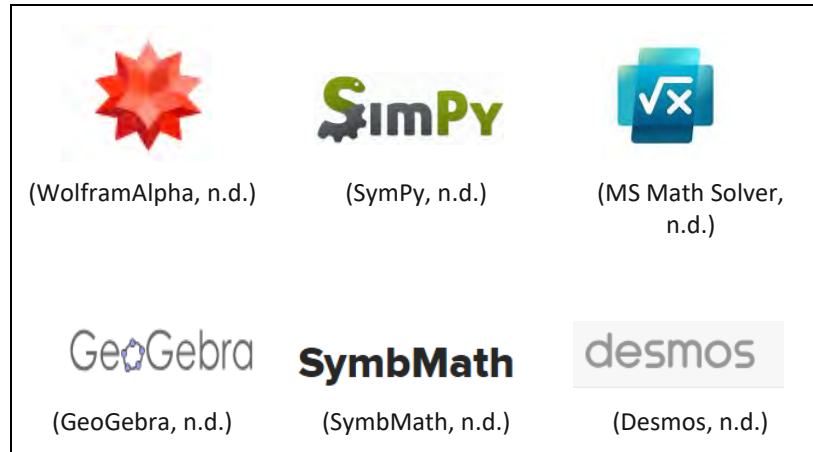
**Figure 4: Chatbots for language learning and practice**

In addition to language learning, Somasundharam (2023) mentions various AI tools that can be used in the advanced field of scientific research and publications. They are Scite Assistant, Consensus, Elicit, Chat GPT, Chat PDF, Research Rabbit, and SciSpace (Figure 5). The use of these tools can help researchers and academics to exploit their time and efforts more effectively and efficiently in fast progressing and publishing their work.



**Figure 5: AI tools for research and publications**

In the meantime, Mehmood (2023) listed top six ai support applications or platforms to facilitate teaching and learning of Mathematics. They are a) Wolfram Alpha, b) SymPy, c) Microsoft Maths Solver, d) GeoGebra, e) SymbMath and f) Desmos (Figure 6). AI, therefore, has simplified Mathematic calculations by providing pleasant learning experience and enhancing stakeholders' problem-solving skills. While AI has contributed to Mathematic teaching and learning, Mathematics has contributed to AI development and application. According to Odeyemi (2023), the vital contribution of Mathematics is related to linear algebra that facilitates the formation of a number of AI algorithms, representing and manipulating data. Moreover, linear algebra helps in natural language processing, image recognition, and recommendation systems.



**Figure 6: AI tools for Mathematics**

#### 4.4 Academics' Perception of Chatbots

A chatbot is a computer program that employs artificial intelligence (AI) and natural language processing (NLP) to comprehend customer inquiries and automatically generate responses, mimicking human conversation. ("What is", n.d.). AI supported Chatbots have been implemented in different fields such as banking, health, education and so on. While the study by Nguyen et al. (2021) revealed customers' levels of satisfaction and their continued use of chatbots in the banking sector, Almalki and Azeez (2020) highlighted that the use of chatbots provides individuals with accessible and personalized support. Meanwhile, in education, chatbots facilitate students with different skills, and abilities to engage in learning, especially when conventional teaching fails to pay personal attention to learners (Srdanovic, 2023) because teachers have no extra time to spare for their learners due to their workload and tight teaching schedule. The study by Lin and Ye (2023) revealed that Chatbot technologies can support students in education "out of class anytime and anywhere and further obtain instant learning supports" (p.275), and it has a positive impact on learners.

Hariastiani (2019) classifies chatbots into three groups based on the structure, the purpose, and the audience. The structure consists of flow chatbot, hybrid and artificially intelligent as detailed in Table one. About the purpose or aim, functionality, and fun are the two sub themes; regarding the audience, generalist and specialist are the sub-groups.

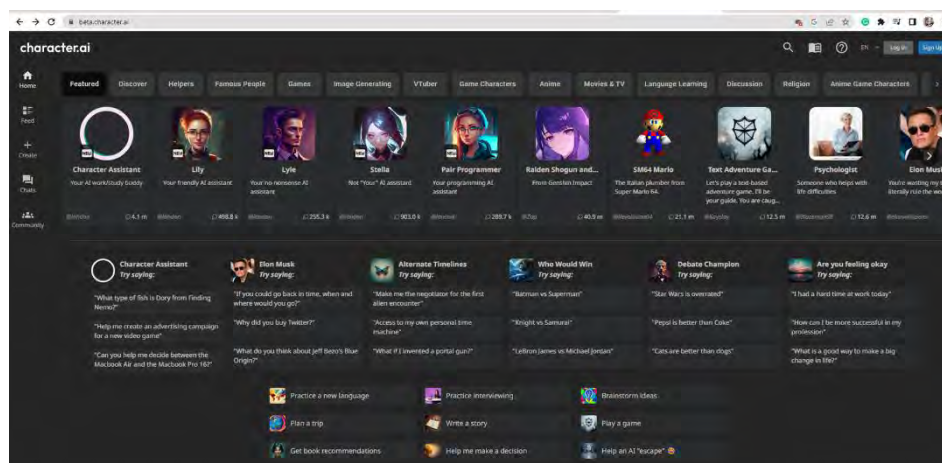
**Table 1: Classification of chatbots**

Classification	Sub-classification	Operation
Framework	Flow chart	The flow chatbot or a tree-based chatbot has fixed responses programmed by the developer, and it only responds to the queries that are saved in the database.
	Artificially intelligent	Artificially intelligent chatbots utilizes intelligence to update its knowledge from the users' interactions or chats and experiences enabling free engagement.
	Hybrid	Hybrid chatbots integrate the features of flow chatbots and artificially intelligent chatbots presenting a personalised and highly engaging interaction with users, but within the developer's pre-determined framework.
Aim	Functionality	Different chatbots have differing functions such as reminder, online assistant, or learning.
	Fun	Some chatbots are for intended only for entertainment activities such as games and fun.
Audience	Generalist	Generalists enable searching for general knowledge about a wide variety of topics
	Specialist	Specialist chatbots focuses on matters in detail.

Note: Adapted from Hariastiani (2019).



It has been established that research concerning the integration of chatbots in education is still at a nascent stage, primarily due to a limited number of empirical studies exploring the application of efficient learning designs or learning strategies through chatbots. This indicates a substantial opportunity for further research to foster innovative teaching methods, ultimately enhancing the learning experience and educational outcomes (Hwang and Chang, 2021). Meanwhile, Kuhail, Alturki, Alramlawi, and Alhejori (2023) states that Chatbots have the potential to transform education through their ability to captivate learners, tailor learning experiences, assist educators, and gain profound understanding of learner behaviors. The study revealed that web-based chatbots were primarily created for teaching subjects like computer science, language, general education, and occasionally engineering and mathematics. Most of these chatbots served as instructors, while some acted as peers. The majority followed a preset conversation path, but a quarter offered personalized learning to cater to individual student requirements. Additionally, certain chatbots incorporated experiential and collaborative learning techniques. More than 30% of these chatbots underwent experimental assessments, showing positive results in terms of improved learning and user satisfaction (Kuhail, et.al., 2023).



**Figure 7: Character AI** <https://beta.character.ai/>

One instance of a chatbot is Character Ai (Figure 7), which enables users to engage in English conversations through a character on the website. According to De Luna (2023), Character.AI is a website that utilizes a neural language model to analyse extensive text data and generate responses based on that knowledge. Users have the freedom to create characters on the site, which can be either fictional or based on real individuals, regardless of whether they are alive or deceased. Additionally, Users have the option to engage in a conversation with one character individually or set up a group chat involving multiple characters, allowing them to converse with each other and with you, all simultaneously, replicating the dynamic and social aspects of human interactions (McLean, 2023; Team, 2022).

#### 4.4.1 Chat GPT – perceived advantages and disadvantages

Chat GPT is an intelligent computer program designed to comprehend human language and provide responses that resemble human conversation. You can engage in discussions with it on a wide range of topics, and it will strive to grasp your input and respond in a manner that sounds natural, akin to conversing with a real person (Moritz, et.al., 2023). GPT stands for Generative Pre-Trained Transformer, which generate text and tasks as prompted by its users. With the launching of Chat GPT as a Chatbot, the possibility of AI has attracted stakeholders from different backgrounds, especially from academic fields. The one-to-one human like interaction in responses to questions offered by Chat GPT on multiple topics instantly shook the academic and non-academic community. For instance (Figure 3), The Guardian published the news as “AI bot ChatGPT stuns academics with essay-writing skills and usability” (Hern, 2022). Another news headline reads, “Robot with ChatGPT shakes up Cyprus classrooms” (Kourtoglou, 2023) while BBC states “Bristol university student creates app to stop cheats using essay bot” (Heath, 2023). Furthermore, “Chat GPT passes MBA exam given by a Wharton professor” (NBC News, , 2023). These (Figure 3) groundbreaking AI advancements and their impacts on academic fields have prompted educators to investigate the subject carefully.

The study by Susnjak (2022) assessed the newly developed AI system ChatGPT which can perform complex tasks and create human-like text. The study found that ChatGPT can exhibit critical thinking and generate realistic text with minimal input, posing a threat to exam integrity. It raised concerns about ChatGPT's potential misuse in online exams, particularly in higher education where online exams are common. While solutions like returning

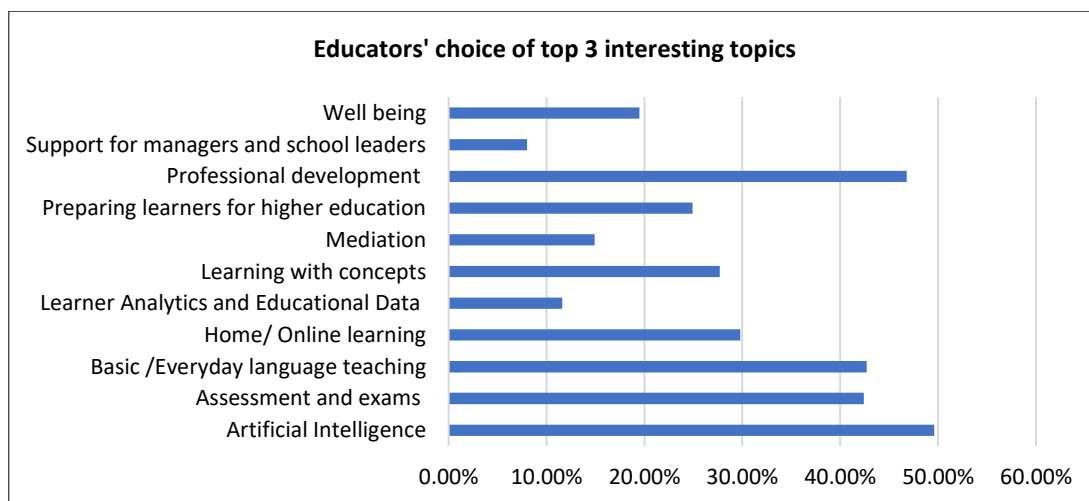
to in-person exams or using advanced proctoring and AI text detection tools may help, they are not foolproof. More research is needed to understand the implications of large language models like ChatGPT and develop anti-cheating strategies. Educators and institutions should remain vigilant in safeguarding exam fairness and validity for all students.

#### 4.4.2 AI assisted text-to-speech and speech-to-text tools

Distinct from chatbots, Kumar, Koul, and Singh (2023) have noted that AI-assisted text-to-speech tools have piqued researchers' interest in exploring various facets of human-computer interaction. Text-to-speech AI platforms have, in parallel, facilitated substantial advancements in computer-mediated interactions. Meanwhile, these AI tools convert word documents, PDFs, and images into spoken content and vice versa, contributing to the simplification and creation of educational materials (Murf Resources, 2023). Natural Reader is an example of an AI tool that can be used to facilitate text to speech functions (Natural Reader, n.d.).

#### 4.5 Perceived Educational Challenges and Opportunities of AI

Findings from the study (Ali, 2023) reveal that AI is a system designed to comprehend human speech naturally, capable of implementing a flipped learning approach for language education, enhancing learners' competence and productivity, and evaluating human speech. The application of AI in pedagogy demonstrates how it simplifies the process of teaching and learning languages (Ali, 2023). In a recent survey (Figure 8) conducted by Oxford English Exchange (2023), involving 389 educators, participants were asked to express their interest in learning about various topics, including well-being, administrative support, professional development, preparing learners for higher education, mediation, learning with concepts, artificial intelligence, assessment and exams, learner analytics and educational data, home/online learning, and everyday language learning. Notably, approximately 50% of the survey respondents expressed interest in acquiring knowledge about Artificial Intelligence (AI), as depicted in Figure 8. It's worth noting that due to the possibility of respondents selecting multiple items, there is response overlap. Consequently, the percentages provided in the survey (Figure 8) represent the relative popularity of each option among participants, and AI emerged as the most popular choice.



**Figure 8: Adapted from <https://oxfordenglishlearningexchange.com/polls/55> 30.09.2023**

Moreover, in the literature review, Gigster (2023) contends that AI does not diminish learners' critical and creative thinking abilities but instead enhances their capacity to modify and thoughtfully select AI-generated content. This, in turn, encourages more profound interaction and innovation, demanding a higher level of critical thinking. On the contrary, according to Carlie (2023), AI has drawbacks, including bias, cost, a deficiency of interpersonal skills, privacy concerns, and job displacement. Ansari (2023) suggests that AI can foster laziness by reducing the need for physical and mental effort in completing basic tasks. Meanwhile, Langreo (2023) emphasizes the need for training educators, as over 62% of surveyed educators expressed a desire to receive training on responsibly and effectively integrating AI into academic settings. In addition, Miller (n.d.) underscores the benefits of training in AI usage, enhancing users' skills, productivity, and competitiveness while inspiring innovative ideas. Despite concerns, Dhanrajani (2023) posits that AI is unlikely to replace human teachers, serving as a bridge between AI-supported information and students. Dhanrajani also highlights the challenges AI faces in fulfilling the teacher's role, such as instilling inspiration, motivation, fostering a nurturing classroom

environment, and developing critical thinking, creativity, and social skills. Likewise, Lakhani (2023) asserts that AI will not replace humans, but individuals with AI skills may replace those without.

As per Luckin (2023), AI might potentially disrupt meaningful learning, particularly when educators and learners are unaware of AI's limitations in empathy and creativity. Similarly, Thomas (2023) identifies biases and data manipulation as inherent risks in AI, leading to unreliability and errors. Yang and Zahn (2023) express educators' worries about students using AI tools for cheating, particularly in essay writing, which has led to the banning of AI platforms like Chat GPT on campuses. Furthermore, Cingillioglu (2023) discusses the growing problem of students using chatbots to write essays, which impacts academic integrity. On the other hand, Samper (2023) believes AI has a positive impact on education but suggests that its intervention may not significantly affect students' outcomes. Mollick and Mollick (2023) found that AI serves as an interactive and personalized tutor. Chen (2023) highlights AI technology's global potential for enhancing new teaching and learning modes, adapting to learners' needs. Additionally, Prothero (2023) points out how teachers can use AI to identify and prepare topic details for teaching their students effectively.

## 5. Methodology

The study employed the methodology of qualitative data collection and analysis to understand the educators' perceptions of the use of AI platforms, especially chatbots such as Chat GPT in teaching and learning. A survey questionnaire with open-ended question was circulated among the English Language teaching staff at the University of Technology and Applied Sciences Al Musannah to gather the educators' views on the subject. In addition, the researcher used data on educators' perception of AI tools such as ChatGPT from the online forum discussion at English Learning Exchange.com, Oxford University in which the researcher is a member and participant. Therefore, the study has used inputs collected from more than 35 educators (E) internationally.

The content analysis was used to analyse the verbatim responses, especially the responses obtained from the open-ended questions to find common themes and sub themes. This study, therefore, used qualitative content analysis, which involves systematic analysis of the content identifying and determining themes, words, or concepts in some texts (Hassan, 2024). Researchers use this analytical method to infer meaning and relationships of themes, concepts, or a particular set of words (Columbia University, n.d.). Based on the analysis, the investigators make inferences about the meanings of messages in the texts in their context. The content analysis attempts to analyse the intent or focus of certain group of individuals, the research participants' attitudinal and behavioural aspects, psychological or emotional condition of the group, and certain patterns of communication revealed in the text (Content Analysis, n.d.).

## 6. Results: Analysis and Findings

The researchers collected verbatim statements from the research participants, which were analysed for main themes and subthemes. There were 35 comments from the educators who participated in the data collection, and they are coded as (E1 – E35). Table 2 illustrates only a few examples of verbatim comments from the respondents, and the analysis mentions other relevant excerpts from the respondents' comments. These comments have helped researchers to answer the research question in line with the research objectives.

**Table 2: Respondents' (educators') verbatim responses.**

<b>Educators (E)</b>	<b>Selected Verbatim comments</b>
<b>E1</b>	<i>"This technology has the potential to transform education by providing personalized learning, immediate feedback, enhanced engagement, increased efficiency, accessible education, and Personalized learning, where AI adapts to students' needs and preferences."</i>
<b>E2</b>	<i>"The existence of such AI tools appears to create ethical problems. A person can get assistance, but s/he must create the manuscript on his own. The frame of "getting assistance" should be defined very cautiously, ..."</i>
<b>E3</b>	<i>"I fear that students will be so dependent on these technologies that they will not be able to think for themselves in the real world."</i>
<b>E4</b>	<i>"Although its good, I don't highly recommend this for my students. This will be an obstacle for their show their creative abilities. Students will depend on this, and they won't give a thought apart from it."</i>
<b>E5</b>	<i>"Technology is a powerful tool for teaching. It can facilitate student learning to its maximum. The key is to know how to use it effectively."</i>
<b>E6</b>	<i>"I fear that students will be so dependent on these technologies that they will not be able to think for themselves in the real world."</i>



<b>Educators (E)</b>	Selected Verbatim comments
<b>E7</b>	<i>"AI can provide access to education for students in remote or underprivileged areas or those with disabilities, thus ensuring accessible education. As technology improves, AI's potential to revolutionize the field of education will continue to expand."</i>
<b>E8</b>	<i>"It is a great technology if it will be used fairly. Yet, we can't rely on this technology wholly as all the information provided by chat GPT isn't reliable. Again, there are chances that students would find it easy to do their assignments using these technologies rather than studying themselves."</i>
<b>E9</b>	<i>"ChatGPT gave the answer and then gave some further instruction about that particular problem. So it's not just for getting the answers. It can also enhance a student's learning. Sort of like a virtual teaching assistant."</i>
<b>E10</b>	<i>"I tried using Chat GPT for framing reading comprehension questions for reading lessons. This technology would be an effective teaching tool for the teachers. However, the students might get fully rely on it for any writing task and this would sabotage their writing skills." "is a good technology, but it may hamper the creativity of the students and teachers both. Ready made things will make them think less. We should not let artificial intelligence take hold on us. _z"</i>
<b>E11</b>	<i>"I think it is a good platform and teachers can benefit from it. It gives a full-length overview of what you ask for."</i>
<b>E12</b>	<i>"There would always be disadvantages of it! As it would finish the human services facility and hardworking. Thus, the human would become more imaginative rather being realistic. Hope! We as a human would use it for the benefit of human being."</i>
<b>E13</b>	<i>"I do think it's important to teach students how to search their own brains without a telephone or other artificial aids and connect their own neurons to produce their own ideas and concepts."</i>
<b>E14</b>	<i>"it can be a two-edged sword of course. In the first place, I suppose it may make it easier for students to cheat in digitized environments, so security measures will probably have to be strengthened when implementing digital assessment for instance."</i>
<b>E15</b>	<i>"To me, it could be motivating for students at the beginning. They love technology. However, teachers should teach them the pros and cons about this."</i>

Based on the analysis of the respondents' comments (Table 2), three main themes were derived in connection with the use of AI (tools) in education. The main themes are: 1) the educators' concerns of using AI (Figure 9) the challenges/ risks posed by AI (Figure 10) and 3) AI facilitated opportunities (Figures 11 and 12).

### 6.1 Concerns

The concerns expressed by the participants include their emotional, and psychological responses to the introduction of AI in the field of education due to their worries or lack of awareness. Marriam Webster (n.d) defines a concern as "a matter that causes feelings of unease, uncertainty, or apprehension". Figure nine summarises the subthemes of educators' concerns as i) no human replacement, ii) scaring development, iii) too much popularity, iv) AI is futuristic, v) training to use, vi) training learners to use their brain, vii) awareness – prose & cons, viii) feel threatened, ix) fun with AI, x) users to decide, and xi) transform education (Figure 9).

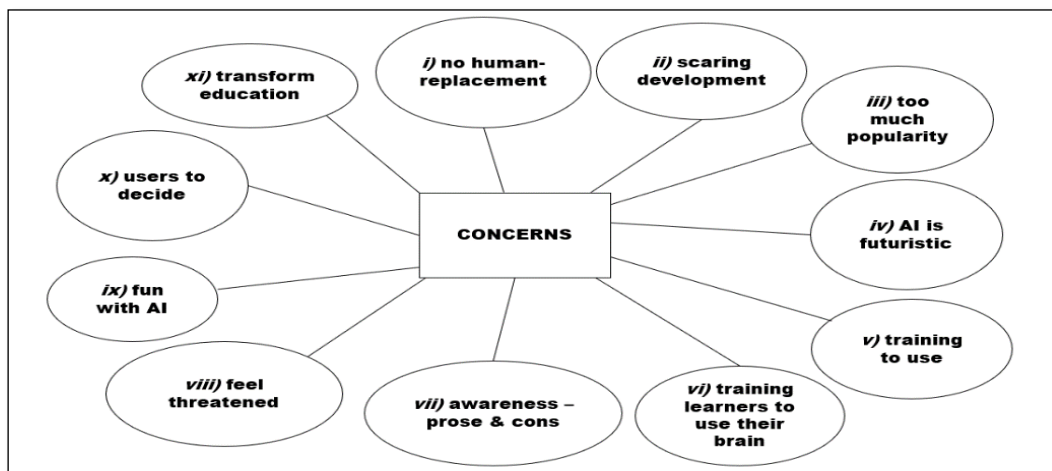


Figure 9: Main theme and sub-themes - concerns

With respect to the sub themes – AI as a scaring development and threatening (Figure 9.ii and viii), E4 states, “This will be an obstacle for them to show their creative abilities. Students will depend on this, and they won't give a thought apart from it”, and E6 comments, “I fear that students will be so dependent on these technologies that they will not be able to think for themselves in the real world” (Table 2). Meanwhile, E35 said, “That's a state-of-the-art thing, currently enjoying some popularity, too much popularity, much more than it deserves. ... It will fade with time.” (Figure 9.iii). Some respondents are concerned about AI pros and cons of AI, and lack of training to educators and learners (Figure 9. vi and vii). In this regard, “... teachers should teach them the pros and cons about this [AI].”, stated E15, and E26 said, “It would be useful for staff in the teaching profession to be given training [in AI]”

In the words of E24 “We should guide our students to use these new tools critically and creatively, and this should contribute to the users’ decision to use AI tools (Figure 9.x). Similarly, E25 states “When using it, we have to make use of our critical thinking and our creativity. It can be an aid when used with discrimination.”, and E23 thought, “... forbidding AI tools will not help - we educators need to know how to use AI tools and provide explicit instructions as to how a student's use of any AL tool is to be handled” (Table 2).

## 6.2 Risks or Challenges

Furthermore, the content analysis revealed the risks felt by educators (Figure 10) as a) elimination of jobs, b) discouraging thinking, c) teachers’ frustration related to giving feedback to learners’ AI assisted writing inputs, d) AI generated essays for assessment purposes, e) finishing off human services, f) AI hampering users or learners’ creativity g) causing errors in information, h) creating opportunities for cheating in exams, i) laziness, and overrating of AI platforms (Figure 10).

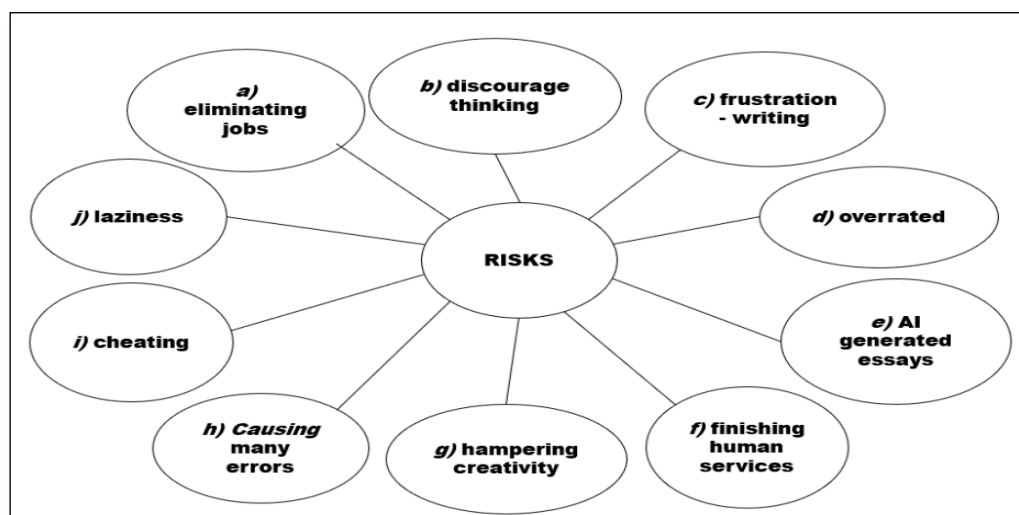


Figure 10: Main theme and subthemes – Risks/ challenges

Regarding hampering creativity, discouraging thinking, and promoting laziness (Figure 10.b, g and j), E3 said, “I fear that students will be so dependent on these technologies that they will not be able to think for themselves in the real world.” Meanwhile, E8 felt that AI platforms are not reliable, and they can cause errors, stating “It is a great technology if it will be used fairly. Yet, we can’t rely on this technology wholly as all the information provided by chat GPT [AI] isn’t reliable” (Figure 10.h).

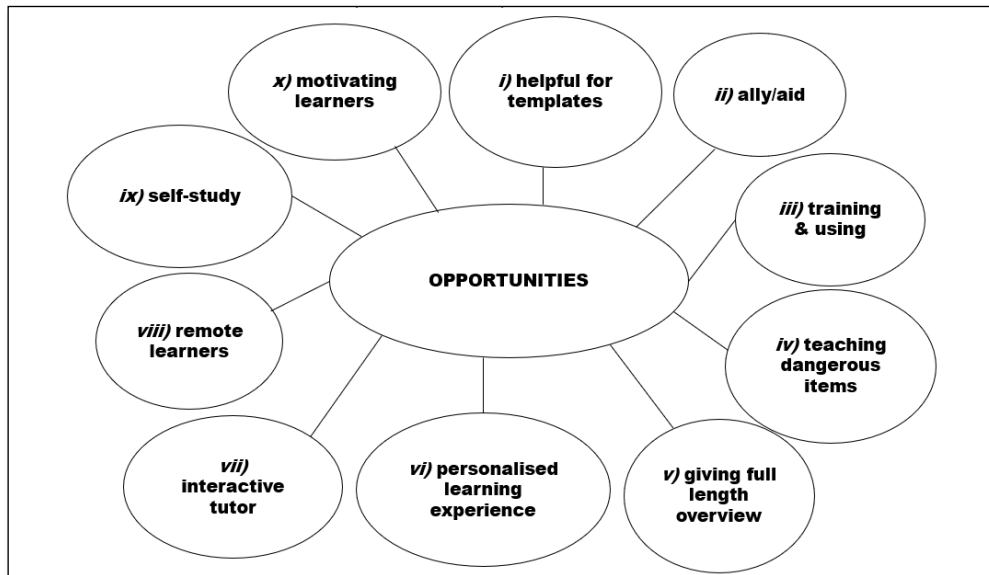
Additionally, E2 and E4 remarked about ethical concerns in using AI (Figure 10.g), especially cheating in exams. They said, “The existence of such AI tools appears to create ethical problems.”, and “I suppose it may make it easier for students to cheat in digitized environments, so security measures will probably have to be strengthened when implementing digital assessment for instance”., respectively. E12 was concerned about the impacts of elimination of jobs and human services (Figure 10.a and f) because of AI, mentioning “As it would finish the human services facility and hardworking. Thus, the human would become more imaginative rather being realistic.” On the other hand, E35 felt that AI is “... Overrated! It will fade with time.” (Figure 10.d)

The inputs from E17 and E22 regarding writing outputs (Figure 10.c and e) demonstrated educators’ concerns and frustration. They said, “I have received so many AI-generated essays these past few weeks, and I am getting frustrated about this.”, and “Frustration, frustration, more frustration as correcting students’ writings is

completely useless as AI-generated writings have got more and more common lately.”, respectively. In addition, E6 commented, “I fear that students will be so dependent on these technologies”.

### 6.3 Opportunities

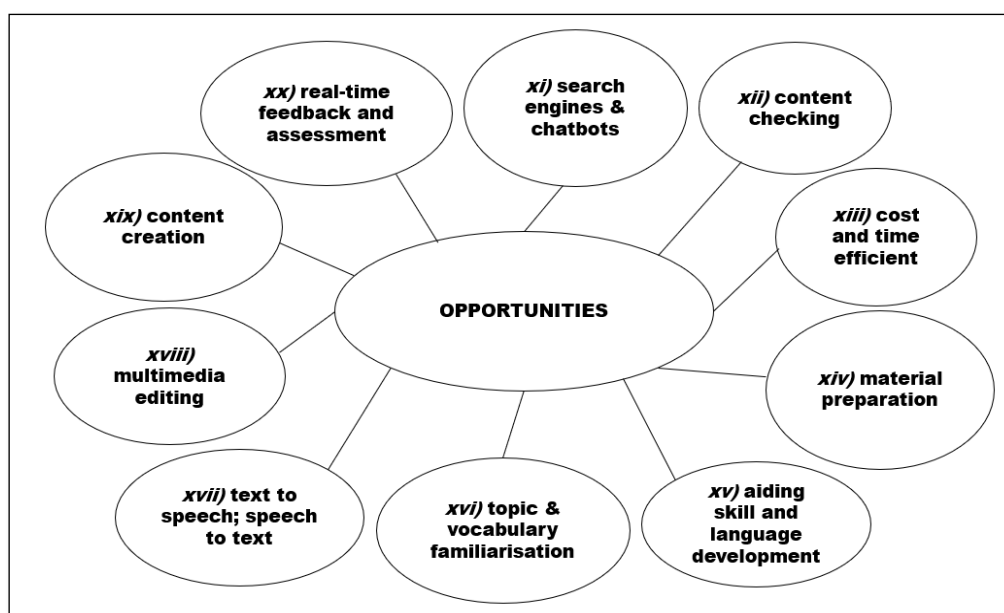
Figure ten and figure eleven provide information about the opportunities provided by AI platforms. In fact, different aspects of opportunities expressed by the study participants outweigh their concerns and the risks. Figure 11 describes opportunities in terms of 10 sub-themes as i) learner motivation, ii) template creation, iii) AI as educational aid, iv) proper training and positive usage, v) AI for teaching dangerous items, vi) personalized learning experience, vii) interactive tutor, viii) remote learner, ix) self-study and x) full length overview of items (Figure 11).



**Figure 11: Main theme and sub-themes: opportunities (i - x)**

To explain further, concerning AI tools for creating helpful templates for writing, E9 commented, “give students a template for something they might not know where to start writing - and then they need to edit and rewrite it, ...”, and E11 remarked, “It gives a full-length overview of what you ask for.” (Table 2, Figure 11.i, and v). In addition, AI as an ally or aid for learning and teaching, E9 and E5 said, “It can also enhance a student's learning. Sort of like a virtual teaching assistant.”, and “... is a powerful tool for teaching. It can facilitate student learning to its maximum. ...” (Figure 11.ii). At the same time, about AI's role of teaching dangerous items, E31 points out, “AI technologies can provide opportunities for students to engage in simulated experiences that might be too difficult, too dangerous, or too expensive to carry out in real life. ...” (Figure 11.iv). While E7 (Table 2) states, “AI can provide access to education for students in remote or underprivileged areas or those with disabilities, thus ensuring accessible education.”, E32 said, “can be used as an interactive tutor, helping students to review key concepts, answer questions, and provide feedback on assignments” (Figure 11.vii and viii). Regarding training and using AI effectively, being an interactive tutors and motivating learners (Figure 11.iii, vii and x), E26 said, “. It would be useful for staff in the teaching profession to be given training etc.”, and E32 and E15 commented that AI tools “can be used as an interactive tutor, helping students to review key concepts, answer questions, and provide feedback” and “it could be motivating for students at the beginning. They love technology.”. This in turn provides personalized learning experiences (Figure 11.vi).

In addition to the details in Figure 11, Figure 12 summarize the remaining advantages or opportunities put forth by AI supported tools in education as unravelled from the respondents' comments. The ten sub-themes are xi) real-time feedback and assessment, xii) search engines and chatbots, xiii) content checking, xiv) cost and time efficient, xv) material preparation, xvi) aiding skill and language development, xvii) topic and vocabulary familiarization, xviii) text to speech and speech and speech to text conversions, xix) multimedia editing, and xx) content creation (Figure 12).



**Figure 12: Main theme and sub-themes: opportunities (xi - xx)**

To elucidate a few sub-themes, E11 remarked, “It gives a full-length overview of what you ask for.”, while E32 stated, “[AI as] an interactive tutor, helping students to review key concepts, answer questions, and provide [real-time] feedback on assignments. ... Sort of like a virtual teaching assistant” (Figure 12.xx). E34 claimed, “AI can provide access to education for students in remote or underprivileged areas or those with disabilities, thus ensuring accessible education”, and this explains how AI is cost and time efficient (Figure 12.xiii). Furthermore, E32 and E15 opined, “[AI is a] a sort of like a virtual teaching assistant” and “it could be motivating for students at the beginning. They love technology” respectively (Figure 12.xix, and xviii; Table 2).

About AI tools as a search engine for content checking and content creation (Figure 12.xi, xii and xix), E21 said, “...prove to be an ally in the classroom, just like any search engine is”, and E10, possibly a language educator, argued, “I tried using Chat GPT for framing reading comprehension questions for reading lessons.” (Figure 12.xiv; Table 2). Meanwhile, regarding aiding language skills and language development in education (Figure 12.xv), E19 added, “the AI powered influx of computer programs will transform the current practice of language education globally. ...” (Figure 12.xi and xii; Table 2). E10 stated that s/he used AI for “framing reading comprehension questions for reading lessons. This technology would be an effective teaching tool for the teachers for finding topics and appropriate words according to topics”, and this explains importance of AI in topic selection and vocabulary familiarisation (Figure 12.xvi) for different learning tasks.

## 7. Discussion

The study has provided the researchers with essential information from secondary and primary sources to achieve the research objectives. While the literature review facilitated insights into certain theoretical aspects of AI, the feedback from research participants enabled the investigators to understand educators’ perceived concerns, challenges, and opportunities in applying AI in the field of education. The educators’ perceptions in the study matched with certain pieces of information gathered from secondary sources. The following sections discuss each main themes that were found because of qualitative data analysis (Figures 9,10, 11 and 12)

### 7.1 Of Concerns

Regarding educators’ concerns (Figure 9) some educators feel scared and threatened of the introduction of artificial intelligence in the academic field (Table 2; Figure 9.ii, viii). The feeling of scare and threat expressed by educators resembled the opinions raised by Kuenssberg (2023) and Elon Musk (Metz and Schmidt, 2023). One of the reasons educators feel scared is that AI might take away students’ creativity and thinking process (Ansari, 2023). Nevertheless, in contrast, Gigster (2023) argues that AI does not deprive people of their critical and creative thinking capabilities, but it might make them better at modifying and carefully selecting AI-generated content, encouraging more profound interaction and innovation, which requires a lot of critical thinking. Moreover, respondents felt that AI platforms, such as Chat GPT, are too popular and overrated lacking proven

effectiveness (Figure 9, iii). Nevertheless, this may not be true, as AI is rapidly advancing across various fields, measured in terms of days and weeks, rather than years (Phillips, 2023).

Another concern is that the unawareness of the pros and cons (Figure 9.vii) of AI may affect learners negatively. Carlie (2023) states that AI has demerits, such as bias, cost, lack of interpersonal skills, lack of privacy and job placement. In addition, it has advantages, such as personalised studying, feedback, facilitating lesson preparation and creating virtual fact simulations. This explains that not only learners, but educators also should be aware of the pros and cons of AI in education. Regarding training in using AI (Figure 9.v and vi), educators reported that learners should be guided well in using it (E26, Table 2). This resembles what Langreo (2023) wrote about the need for giving training to educators that more than half of educators (62%) who were surveyed wanted to get trained in how to teach learners to use AI responsibly and effectively in academic situations. Moreover, the manner of guidance or training in AI is described as critical and creative (Gigster, 2023). Similar responses from educators informs researchers that proper training, considering technical, critical, and moral aspects of the use of AI, is paramount in implementing it. In this regard, Miller (n.d.) states that training or guidance in the use of AI can benefit users in number of ways, making users of AI skilful, productive, and competitive in their field. Training enables educators to know the technology and its potential, encouraging them to come up with new ideas to implement it.

Some educators expressed that AI cannot replace humans (Figure 9.i, Table 2, E27). This view very much agrees with Dhanrajani's (2023) views that AI is unlikely to replace human teachers in the classroom because educators are the intervention between AI supported information and students. Moreover, Dhanrajani (2023) points out that the idea of AI fulfilling the role of a teacher by instilling inspiration and motivation in students, fostering a secure and nurturing classroom atmosphere, and assisting in the cultivation of critical thinking abilities, creativity, and social skills appears quite distant and challenging to achieve. Additionally, the respondents perceive that AI is futuristic (Figure 9.iv; Table 2). This reflects on what Phillips (2023) remarked about the role of AI in education that AI systems are poised to bring far-reaching consequences to the operations of educational institutions, the roles of educators, and the personal and professional growth of students as they prepare for the future workforce; furthermore, the concept of a 'digital native' is quickly becoming outdated, especially as Generation Z and subsequent generations effortlessly acquire expertise in emerging AI technologies at a faster pace than many adults. This provides tremendous opportunities for the application of cutting-edge technologies as generative AI. Finally, some educators feel that AI can be used as a funny means of learning (Figure 9.ix), and users to use it discerningly (Figure 9.x); , and this fun element adds to the concern that AI may disrupt meaningful learning (Luckin, 2023), especially when educators and learners are unaware of their lack of empathy, and creativity as humans.

## **7.2 Of Risks or Challenges**

About risks or challenges perceived by educators (Figure 10), most of them can be understood to have originated from educators' concerns about AI. They viewed discouraging thinking and hampering creativity (Figure 10. b and g) are not mere concerns, but real challenges. While AI proponents (Gigster, 2023) argue against it, Miller (2023) mentions that those who heavily depend on AI may decline their critical thinking. Furthermore, errors or unreliability (Figure 10.h, Table 2, E8) of AI platforms has been a risk perceived by the educators (Table 2, E8). This agrees with Thomas (2023) who states explicitly that biases, and manipulation of data are two of many risks of AI, resulting in unreliability and errors.

Additionally, educators consider cheating (Figure 10.i; Table 2 E2 and E14) in exams and assessments is a risk posed by AI. Yang and Zahn (2023) remarked that educators worry about students' cheating due to AI tools, especially in writing essays (Rosenblatt, 2023). This resulted in banning AI platforms as Chat GPT in campuses. Further, some educators felt AI might eliminate human jobs and services (Figure 10. a and f) in many fields, possibly in the field of education, too. This may not be true because AI lacks human critical and creative thinking; nevertheless, Lakhani (2023) stated that AI would not replace humans, but humans with skills in artificial intelligence might replace the ones without it. Meanwhile, many foresee a possibility of AI take over in many areas of services and jobs (Millar, 2023; Ansari, 2023; Silverman, 2023; Dhanrajani, 2023). However, some respondents felt that AI impact is overrated (Figure 10.d; Table 2 E.35). This perception may be a challenge to educators that they may not pay much attention to the fast-paced impact of AI in education (Phillips, 2023).

Another important and specific risk felt by educators is students' writing that they generate essays with the help of AI chatbots (Figure 10. c and e; Table 2, E17 and E22), such as Chat GPT. Cingillioglu (2023) states that students' use of chatbots for writing essays is a growing problem faced by educators, and it affects academic integrity. Likewise, laziness (Figure 10.j; Table 2-E6) is regarded as a challenge presented because of AI



interruption. This means AI can foster laziness, avoiding physical or mental efforts in accomplishing basic tasks (Ansari, 2023), in addition to decreased level of critical and creative thinking as seen previously (Miller, 2023).

### **7.3 Of Opportunities**

The opportunities (Figures 11 and 12) outweighed the concerns (Figure 9) and challenges (risks) (Figure 10) perceived by educators who participated in the study. One of the advantages or opportunities presented by AI for learners is that it is helpful for template, especially in writing or other technical lessons (Figure 11.i; Table 2-E9). According to The Writing Centre (n.d.), AI platforms facilitates brainstorming ideas, generating outlines, and familiarising models or genres of writing in writing lessons. Nevertheless, as mentioned earlier, this has the potential to affect academic integrity (Cingillioglu, 2023) negatively. Further, some participants responded that AI could be ally or aid in education and can be used as a tool with proper training (Figure 11.ii and iii; Table 2 E5 and E9). This supports Samper's (2023) view that AI contributes positively to schooling though he feels that its intervention does not affect students' results significantly.

Another important opportunity offered by AI in education is that it helps educators to teach dangerous items to students (Figure 11.iv; Table 2.E31). This resembles one among many AI dependent future promises envisaged by Teach for America (2023) in education that AI technology can be used to facilitate training skills that are risky and hard otherwise. In addition, AI as a learning aid provides full length overview of the learning task, personalised learning experience and service as an interactive tutor (Figure 11. v, vi and vii; Table 2.E11 and E12). The study by Mollick and Mollick (2023) found that AI functioned as an interactive and personal tutor if used in manner being aware of the risks (Yang and Zahn, 2023; Thomas, 2023).

Moreover, AI facilitates remote learners, self-study, and learner motivation (Figure 11. viii, ix and x; Table 2 E34), and this explains how AI is cost and time efficient (Figure 12.xiii; Table 2 E15 and E32). Learners' love for technology motivates their learning by means of it (Jayaron and Blessy, 2022; Jose, 2022, Jose 2021). Furthermore, Chen (2023) wrote that AI technology provides worldwide opportunity to enhance new modes of teaching and learning, adapting to learners' needs.

Another opportunity educators felt is that AI platforms such as chatbots function as search engines (Figure 12.xi), which can help them prepare teaching materials (Figure 12.xiv) and check and create content (Figure 12.xii and xix; Table 2 E10 and E21). Meanwhile, regarding aiding language skills and language development in education (Figure 12.xv; Table 2 E19), respondents felt that AI powered computer program would transform the current practice of language learning and education worldwide. In this regard, the number of AI facilitated teaching tools, specific to different subjects (Figures 5, 6 and 7; Mehmood, 2023; Somasundharam, 2023) demonstrate that these opportunities perceived by educators as realistic.

Apart from the above derived sub-themes of opportunities, researchers' reflection on respondents' feedback and the literature review found that AI is advantageous for identifying learning topics and familiarising topic specific vocabulary for teaching and learning; manipulation of text to speech and speech to text AI platforms for teaching skills and language, especially listening, speaking, and reading; and editing multimedia contents (Figure 12.xvi, xvii and xviii). King and Caplan (2023) explain editing multimedia content with the help of AI tools in education, such as creating an image from text prompts, diagrams and editing videos; they discuss chat, search, document-based AI tools in addition to specialty and multimedia tools. Moreover, teachers can identify topics and topic details in preparation for teaching their learners (Prothero, 2023). Meanwhile, the text to speech and speech text AI software converts word, pdf and image documents to speech and vice versa fostering learning through simplification and creation of educational contents (Murf Resources, 2023).

## **8. Limitations of the Study**

The scope of the study was limited to the respondents' verbatim responses and the literature reviewed. While the majority of sub-themes in the findings were identified through the analysis of the responses, a few similar sub-themes were derived from the literature review. For example, sub-themes such as multimedia editing, text-to-speech, and speech-to-text (Figure 11, xvii and xviii) are derived from the literature review. They are included in the analysis due to their similarity to the main theme. Moreover, the study does not include the age and gender of the respondents.

Furthermore, the findings are based on the analysis of educators' responses, which might be context-dependent and may not be applicable to different audiences in different contexts. Furthermore, Table 2 and the analysis included only a sample verbatim comments for readability. Finally, this study was conducted over a short-term

period during the introduction of AI in various fields. However, a long-term study focusing on the rapidly advancing AI platforms may yield different findings and provide deeper insights.

## **9. Conclusion and Recommendations**

To conclude, the study has reasonably answered the research question investigating educators' perception of the challenges and opportunities of using AI tools in learning and teaching. The main findings include three main themes and their subthemes, which are summarized as – concerns, risks, and opportunities.

Certain practical implications of the study are summarized with reference to the findings. In fact, the concerns, and risks (challenges) revolve around various aspects of AI technology. Moreover, they address the notion that AI will not fully replace humans and the concerns arising from its rapid development and widespread popularity. However, AI is often seen as futuristic and requires training for effective use, although some advocate for training in enhancing human cognitive skills instead of relying solely on AI. Furthermore, there is an emphasis on awareness of both the advantages and disadvantages of AI, as it can be both promising and threatening. While AI can provide enjoyment and entertainment, its adoption ultimately depends on individual user decisions. Nevertheless, regarding risks, the educators worry about job displacement, AI's potential to stifle critical thinking, and the challenges teachers face when providing feedback on AI-assisted student writing. There are also discussions about the use of AI-generated essays for assessment and concerns about its impact on human services. In addition, AI is seen as a potential hindrance to users' creativity, a source of errors in information, and a platform that could facilitate cheating in exams. Additionally, some caution against the development of laziness and the overestimation of AI platforms is required in the application of AI tools in education.

On the other hand, the opportunities of AI perceived by educators exceed their felt concerns and risks. They include a range of aspects, such as learner motivation, the creation of templates, AI's role as an educational aid, the importance of proper training and responsible utilization. Additionally, they touch on more specific areas like using AI for teaching potentially dangerous subjects, delivering personalized learning experiences, providing interactive tutoring, catering to remote learners, promoting self-study, offering comprehensive item overviews, enabling real-time feedback and assessment, employing search engines and chatbots, facilitating content checks, maintaining cost and time efficiency, aiding in material preparation, enhancing skill and language development, familiarizing students with topics and vocabulary, enabling text-to-speech and speech-to-text conversions, supporting multimedia editing, and assisting in content creation. These aspects collectively illustrate the diverse and multifaceted role of AI in the field of education in terms of its practical implications and implementation.

In line with the research objective, literature review, analysis, findings, discussion of the findings, and the conclusion, the following recommendations are made.

- Educators and learners should be made aware of the pros and cons of AI and Chat bots.
- Specific instructions regarding the use of AI assisted learning tasks should be set in place before integrating such technology in teaching.
- Proper digital monitoring system should be in place to avoid cheating and plagiarism through AI platforms.
- Learners should be made aware that it is their own intelligence that counts in exams despite every form of AI assistance.
- Stakeholders should be made aware that AI is not a replacement for human intelligence and expertise.
- AI should be used as an aid, but not as an alternative to humans because it lacks empathy, creativity and intuition which are essential for human learning and communication.
- AI is fallible, and stakeholders should be made aware that AI can make mistakes or produce biased results if it is not properly designed, tested, and monitored.
- Proper training should be given to stakeholders (teachers, learners, administrators, etc.) in applying AI platform in education.

Regarding future research, since AI is fast evolving, constant studies may be carried out to measure its implications on social, cognitive, behavioural, ethical, intellectual, and emotional aspects of learning and teaching. In addition, further investigations may be carried out to understand subject/ specialization-wise impacts of AI on education, and different AI aided techniques to be incorporated to facilitate learning.

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