High School Teachers' and Students' Perspectives of Effective AI Tools Used in Surmounting Challenges in TESOL Contexts in the UAE

وجهات نظر معلمي وطلاب المدارس الثانوية حول أدوات الذكاء الاصطناعي الفعالة المستخدمة في التغلب على التحديات في سياقات تدريس اللغة الإنجليزية كلغة ثانية في دولة الإمارات العربية المتحدة

by

MAALY KHALIL

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Abstract

The purpose of this study is to investigate the attitudes of both teachers and students towards the use of Artificial Intelligence tools in educational practices such as teaching methodologies, assessment practices, and learning outcomes. Furthermore, it aims to identify the most effective AI tools used among teachers and students in 2024 in the learning and teaching process. The study also presents some of the recently appearing Artificial Intelligence educational tools used by teachers and students in the UAE and how effective they are in overcoming the challenges encountered by teachers and students. The study uses a mixed method approach—qualitative and quantitative—to reach reliable results accurately. The research sample consists of 30 experienced high school teachers who teach English to speakers of other languages and 45 high school students who are interested in research. The sample is a mix of Emirati and expat participants who live in the UAE. The survey included open-ended and close-ended questions. The questions investigated the teachers' and the students' perspectives on using Artificial Intelligence in the learning process, which were mainly positive and welcoming of this new technology; however, this acceptance was accompanied by certain conditions. This study is also important for future researchers and educational leaders as teachers and students have provided suggestions on using those tools inside and outside classrooms. Moreover, the results have highlighted the need for more specialized tools and more training that can help teachers surmount the educational challenges they face.

Keywords: artificial intelligence, educational practices, effective AI tools

خلاصة

إن الغرض من هذه الدراسة هو التعرف على اتجاهات كل من المعلمين والطلاب نحو استخدام أدوات الذكاء الاصطناعي في الممارسات التعليمية مثل منهجيات التدريس وممارسات التقييم ونتائج التعلم. علاوة على ذلك، يهدف إلى التعرف على أدوات الذكاء الاصطناعي الأكثر فعالية المستخدمة عام 2024 بين المعلمين والطلاب في عملية التعلم والتدريس. كما تعرض الدراسة بعض أدوات الذكاء الاصطناعي التعليمية التي ظهرت مؤخراً والتي يستخدمها المعلمون والطلاب في دولة الإمارات، ومدى فاعليتها في التغلب على التحديات التي تواجه المعلمين والطلاب. تستخدم الدراسة منهجًا مختلطًا – نوعيًا وكميًا – للوصول بدقة إلى نتائج موثوقة. تتكون عينة البحث من 30 معلمًا من ذوي الخبرة في المدارس الثانوية الذين يقومون بتدريس اللغة الإنجليزية للمتحدثين بلغات أخرى و45 طالبًا من طلاب المدارس الثانوية المهتمين بالبحث. العينة عبارة عن مزيج من المشاركين الإماراتيين والمغتربين الذين يعيشون في دولة الإمارات العربية المتحدة. يتضمن الاستبيان أسئلة مفتوحة ومغلقة. تناولت الأسئلة وجهات نظر المعلمين والطلاب حول استخدام الذكاء الاصطناعي في عملية التعلم والتي كانت إيجابية بشكل أساسي ومرحبة بهذه التكنولوجيا الجديدة؛ إلا أن هذا القبول كان مصحوبًا بشروط معينة. كما تعد هذه الدراسة مهمة أيضًا للباحثين المستقبليين والقادة التربويين حيث قدم المعلمون والطلاب اقتراحاتهم حول كيفية استخدام تلك الأدوات داخل الفصول الدراسية وخارجها. علاوة على ذلك، سلطت النتائج الضوء على الحاجة إلى المزيد من الأدوات المتخصصة والمزيد من التدريب الذي يمكن أن يساعد المعلمين على التغلب على التحديات التعليمية التي يواجهونها.

Dedication

I praise and thank Allah, the Almighty, the Lord of the Worlds, for granting me the strength and perseverance to complete this dissertation successfully.

I want to extend my deepest gratitude to my mother, who has been my unwavering source of encouragement and support throughout this journey. Your love and guidance have been invaluable to me, and I am forever grateful.

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List of Abbreviations

UAE	United Arab Emirates
AI	Artificial Intelligence
AIED	Artificial Intelligence Educational Tools

Chapter 1: Introduction

1.1 Overview

"Artificial intelligence will reach human levels by around 2029. Follow that out further to, say, 2045, when we will have multiplied the intelligence—the human biological machine intelligence—of our civilization a billion-fold."

Ray Kurzweil

In recent years, Artificial Intelligence has stood out as the front line of all the technological advancements. It has revolutionized industries, shaped societies, and transformed the ways we used to live and work. According to Kurzweil, Artificial Intelligence will develop and advance till it reaches the exact human level or even exceeds it in thinking, reasoning, and solving problems. This means that Artificial Intelligence systems will play significant roles in people's lives. Consequently, Artificial Intelligence has become the core of almost professional development needed to enhance almost all fields nowadays, and education is no exception. According to Dadshah et al. (2023), this new technology has helped to drastically transform traditional education into a smart form. It is becoming a booming, viral trend to impress everybody with the number of tasks that can be done with the least effort and time.

1.2 Background and Motivation of the Study

In the UAE, education is considered a vital sector for the government, according to the National Agenda 2021, as it is the fundamental base for achieving economic and social success. The UAE leaders and policymakers have been placing significant effort into transforming education (Alyammahi, 2020). They aim to equip all the educational institutions with the smart systems and tools that will enable educators to achieve this vision. AI has been

considered a new challenging solution to a lot of problems that face all stakeholders in education, so this study will investigate the challenges and advantages of Artificial Intelligence in the educational field.

There are many perspectives about Artificial Intelligence, and how it is going to invade the educational fields. Questions such as: “Are the students prepared to face this new challenge of Artificial Intelligence?” or “How do educational stakeholders approve of this new technology?” have been raised extensively among teachers.

The appearance of Artificial Intelligence can be compared to the appearance of any other new technology in our lives; we all form opinions about it, how to use it, and how to accept or refuse it. This is also related to the growth mindset that is taught to most students nowadays as a pillar for the 21st-century skills promoted in schools. It is the ability to see every new technology as an opportunity to grow and develop (Trisnawati, 2023).

Therefore, this paper intends to investigate the existing Artificial Intelligence tools and how students and teachers view these in order to improve education and guide new students and teachers on how to use what is best for them. This paper also intends to examine potential challenges that might face teachers and students when using Artificial Intelligence tools.

By analyzing the opinions of students and teachers, we can open more doors for these tools or close others. Recommendations will be given according to teachers’ and students’ reviews after participating in surveys. In any context, it is very important to hear from those who have direct contact with the subject under investigation to examine its effectiveness and identify any gaps.

1.3 Statement of the Problem

According to Alhalangy and AbdAlgane (2023), Artificial Intelligence, accompanied by its related tools, is necessary for the improvement of students' language abilities as well as their engagement in their own learning process in today's digital age. They state that a great number of studies have shown that AI tools have an overall positive impact in the classroom environment. Some of those studies have shown that students find that learning a new language is more pleasant and engaging when they have access to authentic resources that can be supported by technological approaches. Thus, this conclusion needs to be studied for further clarification.

The problem addressed in this research is that according to Harry (2023), educators need to update their knowledge concerning the plethora of new Artificial Intelligence tools. With the changes that are happening every second, there is limited effectiveness in traditional methods of teaching English to students, especially with all the new technologies students use in their daily lives.

Since Artificial Intelligence is a new realm in education, there is also a need to explore its effectiveness and how teachers and students perceive its use in the field. This investigation will help the educational field grow and improve. The challenges that will be faced while using those tools will pave the way for better comprehension and adoption of this new technology. This will also enable schools to decide how and when to implement Artificial Intelligence educational tools.

While new terms in education have emerged, such as smart education, machine learning, adaptive learning platforms, and Artificial Intelligence pedagogy, that we need to

learn about as teachers, the potential future of Artificial Intelligence depends on studying it thoroughly and knowing how students and teachers perceive it.

1.4 Purpose and Objectives

This study will assess and identify practical Artificial Intelligence tools to overcome educational challenges in the UAE from the perspectives of high school teachers and students. It will also discuss the challenges of integrating Artificial Intelligence tools in TESOL contexts and examine high school students' experiences, opinions, and suggestions regarding the use of these new tools in learning English.

This research aims to investigate and analyze whether students and teachers of English prefer AI in learning and teaching to speakers of other languages. It aims to provide a comprehensive picture of how students and teachers view the use of AI tools in education. This study also investigates conclusions about both the negative and positive impacts of AIED tools.

1.5 Research Questions

1. What are teachers' and students' perspectives of using AI tools in education?
2. What are the effective AI tools used to overcome the current educational problems faced by teachers and students in the UAE?
3. What benefits are observed from using AI tools in TESOL teaching?
4. What challenges or limitations have they encountered in using AI tools in TESOL contexts?
5. What suggestions would be added to those tools or new educational requirements that may be needed for both teachers and students?

1.6 Rationale for the Study

This study intends to improve teaching and learning skills by examining and applying students' and teachers' preferred Artificial Intelligence tools. It will also contribute to the existing field of knowledge on Artificial Intelligence in education. Educational institutions can be informed about effective AI resources that can be utilized to achieve learning opportunities for both teachers and students.

This study will assist teachers as it provides a thorough description of a group of Artificial Intelligence educational tools that are in use in the UAE now, which will help teachers to try some of these tools with the students to achieve the most benefits from them. Curriculum creators can also include some of these tools in the curriculum to help students learn the language.

Schools and Artificial Intelligence developers need to consult direct users like teachers and students to eliminate drawbacks and enhance effective benefits. Moreover, students need to be well-informed about the new society and job market requirements. Future researchers might need to identify the gap in this research and build on knowledge for others to reach a complete understanding of this new technology.

1.7 Structure of the Dissertation

This dissertation consists of five chapters: the introduction, the literature review, the methodology, the results, analysis and discussion, and the conclusion. The first chapter provides the reader with an explanation of the content of the study. It also includes the study's general background, the statement of the problem, the purpose, the objectives and research questions, and the rationale for the study. Chapter two, which is the literature review, provides the reader with the defined concepts in the Artificial Intelligence field and the analyzed

theories that underpin the study. Topics such as Artificial Intelligence and Independent Learning, Adaptive Learning, Blended Learning, Personalized Learning, Game-Based Learning, and Inclusion will be covered in a review of related studies about Artificial Intelligence. The third chapter will provide the selected methodology for the research, the design, the sample, the ethical considerations, and the data analysis technique. Chapter four will present the qualitative and quantitative results, analyze and summarize them, and compare them with regard to the literature review and the research questions. The final chapter, which is the conclusion, will give an overview of the study, discuss the key findings, and present the limitations and the recommendations of the study, with scope for further studies.

Chapter 2: Literature Review

2.1 Overview

This chapter will provide a "comprehensive overview" (Denney & Tewksbury, 2013) of the study to show what is already known about the topic of Artificial Intelligence in the educational field and how previous studies have tracked and examined this new stream. It will critically discuss the concepts, approaches, and theories that are relevant to AI usage in education.

2.2 Conceptual Framework

The terms: Artificial Intelligence, AIED tools, IXL, Century, Alef, ChatGPT, and Gradescope by Turnitin, Gemini by Google, and Eduaid. AI, Independent Learning, Engagement, Adaptive and Personalized Learning, game-based learning, and 21st century skills are explained and discussed thoroughly in this section. The terms are selected according to their importance to the study and the research questions. Analyzing these terms will reflect the understanding of the role of Artificial Intelligence and its influence on the educational process.

2.2.1 History and Definition

Artificial Intelligence is not a new term that appeared recently; it became popular a decade ago. As a few researchers have claimed, it can be traced to the year 1943, when Warren McCullen, a neuroscientist, and Walter Pitts, a logician, tried to find out how the brain works and how it responds to different stimuli. As Marsalli (2006) explained, they specifically tried to comprehend how the brain could generate and compile patterns by using basic cells, which are called neurons, that are connected to each other and shaped like a web. Then, they cooperated and published their paper, "A Logical Calculus of the Ideas Immanent in Nervous

Activity," in the Bulletin of Mathematical Biophysics 5:115–133, which is now known as the first work in the history of Artificial Intelligence. This paper is now highly significant in the field of computer science. In their paper, they created a simplified version of a neuron, a cell, that is now called MCP. This neuron model enabled scientists later to develop artificial neuron networks, which are very similar to the neuron networks in the human brain. Still, since this was the first step in imitating human mind cells, they had limitations. Later, many scientists tried to develop and improve those neurons or cells. In 1959, Frank Rosenblatt achieved the next major progress in the field of Artificial Intelligence. He was able to work on the idea of making those cells perceive data exactly as the human mind receives and translates data. He worked on other cells that would associate the artificial neurons built by McCulloch with each other in order to detect and locate the presence of specific features and react accordingly. Since then, this field has grown wider and attracted the attention of the majority of scientists in order to use this new computational tool in many fields (Marsalli, 2006) .

2.2.2 AI in Education

2.2.2.1 In Terms of Human Activities. According to Baker et al. (2019), AI in education classrooms instead of teachers, as the majority of people might think. AI can be categorized according to four forms. First, AI, as in machine learning, is a new system that is invented to act according to data, not predetermined rules. The machines in this category are compared to the students as they will be taught lessons in order to apply the knowledge they have perceived. To clarify, in the past, computers were designed to respond according to an implemented rule. For example, a window would be opened after pressing on its icon, but now a window on a computer could open because it might obtain or seek knowledge that can be added to a written context. In this form, scientists are trying to mimic the way students connect information to learn and solve problems, so the scientists can create robots that are able to learn and consequently perform whatever tasks are related to the subject under discussion. For example, scientists would like to teach machines how to operate a system in the same way they teach a human being. Second, other scientists are trying to mimic how the brain neurons work in the human mind. These are a set of artificial neurons connected with networks that create nodes for certain data to be processed, exactly like what happens in the human brain. This is based on the Warren McCullen model that was presented in 1940. Then, there are the third and fourth forms or categories of AI that scientists planned to study during 2019. Scientists worked on developing new forms or tools that they called narrow and general AI. Narrow AI tools can achieve or process one human task, while general AI tools can produce many human tasks, and these generations are yet to be fully comprehended (Baker, Smith, and Anissa, 2019).

However, Reiss (2021) explained that intelligence is not a feature of humans only; some animals have capabilities at higher levels than humans. For example, some special species of birds have longer memories than humans. Reiss (2021) clarified that AI nowadays is connected with everything that would improve a human's quality of life, and can be connected to any advancement or development in any machine or device being invented. Since this research paper focuses on AI in the field of education, it will thoroughly tackle the impact of AI on learners and teachers (Reiss, 2021).

After tracking what Reiss (2021) concluded in his study, it was found that Wang (2008), in his research about Artificial Intelligence, made similar claims but provided detailed definitions for AI tools, writing that AI cannot be defined only as a form of human intelligence because that narrow way would lead to the idea that research would be impossible. On the other hand, it cannot be defined as being as broad as the existence of computer systems. Thus, there are five different ways to define AI based on the following (Wang, 2008).

2.2.2.2 In Terms of Structure . Wang (2008) defines AI by structure, which is related to the structure of the human brain. A machine that is powered by an AI system is "brain-oriented". Most studies have dealt with the idea that the brain is the source of knowledge and that this is how AI as a source of knowledge needs to be operated . Computers need to be programmed with the same knowledge given to humans to act and respond in the same way humans do.

2.2.2.3 In Terms of Behaviour. According to this notion, there is a huge difference between the mind and the brain. AI needs to be defined according to "cognitive modelling", which means how AI and the human brain behave in similar situations. A very famous research topic related to this idea is the 1959 "Turning Test".In this research, chatbots, as an

example of AI powered tools, depend on this definition. Chatbots talk like humans, but only after training and applying setting up processes such as searching, reasoning and planning in their communication.

2.2.2.4 In Terms of Principle. In this definition, AI is considered the closest solution to any problem. AI tools are defined according to their abilities to solve problems that face humans. For example, an intelligent human is a person who is capable of finding solutions to challenges easily. In this scenario, AI is a tool to find solutions. AI, in this definition, refers to the ability to find many solutions but choose the most accessible one. Here Wang (2008) agrees with Simon (1957) in defining AI according to the idea of "bounded rationality". This definition supports the idea of "information processing" in the human mind and how the brain deals with information in different situations.

2.2.2.5 In Terms of Capability. According to Wang (2008), to define AI in this domain, it needs to be capable of doing the tasks humans can do. The intelligence of a system, in this definition, refers to the capability of doing tasks as an expert. For example, there are AI tools that imitate playing chess like experts, and they are able to beat the best players recorded in history. In this case, AI tools are capable of mimicking the techniques used by previous humans to be able to complete a project.

2.2.2.6 In Terms of Function. Wang(2008) in his definition, supported what engineers believe in, which is algorithms—a batch of orders that must be followed by computers to perform calculations or solve operational problems. This is merely a formal and scientific explanation to define the instructions or procedures done by specific commands to perform an

intended task. This is called computation theory and it depends on “the computation formation and the algorithmic implementation”.

2.2.2.7 In Terms of Product. On the other hand, Baker et al. (2019) argued in the recent report, *Education Rebooted*, hat defining AI in education is more pertinent to the product presented by this technology rather than how it works or how it is manufactured, as defining AI must vary according to the field it serves, not according to the function, behaviour, structure, or even capability. In education, AI means tools or computers that achieve cognitive assignments that are completed by human minds. This definition is based on the ability to accomplish the action.

Baker et al. (2019) preferred this definition for four reasons. The first is that this term does not define one technology or tool but rather acts as an umbrella for other divisions or representatives of the technology. The second reason observed so far by many educators is that all new technologies are developed and enhanced by users and scientists according to need and availability. Technology does not keep one form over a decade. Thus, the future of AI is not yet determined, but it is here to stay. The third reason implies that, generally, educators are interested in the impact of this technology on students, not in how this technology is scientifically justified. Finally, a large number of AIED tools are on the market now, and it will take time to determine the best tools for students and teachers (Baker, Smith, & Anissa, 2019).

2.2.3 AI-Powered Tools in Education

According to Baker et al. (2019), AI tools were already used in schools a long time ago and can be grouped into three fields: student-facing, teacher-facing, and system-facing tools.

2.2.3.1 AIED Student Tools . Baker etal.(2019) explained that student-facing tools promote very important educational approaches such as “adaptive” and “personalized” learning. They also provide differentiated activities, tasks, and sources. Furthermore, according to Kruger (2021), students need to be prepared to take a self-directed and lifelong approach to learning, which is now a requirement provide students with 21st-century skills. This notion has appeared during the fourth industrial revolution, especially after transforming textbooks into eBooks that can be modified according to each student’s needs and demands. This is exactly why adaptive learning technology has blossomed, so it can help students set goals and extend their knowledge before assessments. This approach enables students to use a “tailored learning path” based on their data. Adaptive learning platforms and tools, later developed to be AI-powered, answered teachers’ questions on how to help students with different learning styles, abilities, backgrounds, and diversities. Kruger stated that the discrepancy of knowledge is a “student problem,” not a “teaching problem”. Especially in high schools and colleges, students need to be aware of job market requirements and build their own knowledge to progress in order to meet the challenges of the 21st century (Kruger, 2020).

2.2.3.1.1 Century. Accoeding to Baker et.al (2019), Century is an AI-powered platform and application that helps students progress in their learning. Its vision extends to teachers as well, supporting them with the latest successful AI tools in education. This technology works by identifying students’ weaknesses and working on them by providing exercises that will elevate their knowledge and application in English, maths, and science. Century prepares students for international exams through mock tests that also provide an analysis of the students’ answers and identify the weaknesses and what needs to be done to develop and score

higher. Students and teachers have shared their feedback about this application on the official website, supporting the idea that it allows students to go beyond what they are supposed to learn and provides instant feedback. Students are assured that they cannot only type a problem and get the answer for it right away, but they can also learn the steps to find the perfect solution for it. It is really helpful for homeschooling and independent learning ("Using CENTURY for Beneficial Home Learning at St Edmund's - CENTURY," 2023).

2.2.3.1.2 IXL. According to Edwards (2022), IXL is an award-winning personalized platform created to help students improve their academic skills in maths and English language arts. Previous research has shown that using IXL has improved students' academic performance. As stated on the website, IXL enables learners to create their own independent path to progress in their learning journey. It includes built-in differentiated exercises for all grade levels from K–12. Teachers, students, and parents have reported on the website that it is effective, trusted, and flexible for students in classes and at home. Teachers can also help students progress and identify the questions they struggle with using features such as "live classroom". Students are given instant feedback once they answer questions. IXL includes built-in quizzes and adaptive ones that teachers can modify according to students' levels. Teachers can easily see students' activities, track their scores, view practice sessions, and check standards aligned with the questions. According to Edward (2022), IXL uses smart technology that offers skills that enable students to collect awards when they reach 100 points on a virtual book. These are smart scores as well because they adapt according to the difficulty of the questions.

2.2.3.1.3 Alef. According to Alyammahi (2020), Alef is a smart AI-based platform that is mandated in public schools in the United Arab Emirates. Alef's vision is to expand the use

of effective technology in education from kindergarten to grade 12, but for now the platform offers interactive subject courses for grades 5–12 only. It is a skill-based content platform that trains students to develop 21st-century skills. What is unique about this platform is its ability to track students' progress through formative and summative assessments and to offer more insight to teachers about the students' level to provide those struggling with the needed help.The platform provides a comprehensive content that is aligned with the Ministry of education curriculum to achieve the maximum benefit for Emirati students as the newly developed AI tool allows students to follow an independent and adaptive learning system.

2.2.3.2 AIED Teacher Tools . According to Baker et al. (2019), teaching is one of the most overwhelming professions in the world and has a negative effect on teachers' well-being. Teachers' overload is a growing dilemma. Paper and administrative work occupy teachers' time, leaving them with low energy and less time to teach effectively inside classrooms. According to the 2017/18 Labour Force Survey, "Teaching is one of the three professions with the highest reports of stress and depression." "In 2016–2017, 9.9 percent of teachers in England left the profession." In addition to that, the British government was not able to recruit the needed number of teachers for schools in 2016. They struggled with recruitment throughout the year, especially with subjects like physics.

UAE is no exception; teachers are also being overwhelmed with the high expectations and excessive requirements to cope with this era's demands, and 21st century skills are one of many examples. Using AI effectively to assist teachers in this noble profession will enable them to raise the quality of teaching inside the classrooms, reduce workload, and gain full comprehension of students' needs in order to guide them in their learning journey.

2.2.3.2.1 Chat GPT . Teachers in the UAE have been using this AI tool a lot recently. It is a writing tool that can generate lesson plans, give feedback, and create worksheets related to the subject taught in class. According to Ausat et al. (2023), ChatGpt has great potential in the learning and teaching process; however, it will never replace the role of the teacher in planning, teaching, and evaluating the student's progress. At the same time, all these technologies have raised the question about the role of a qualified teacher. Although ChatGPT can generate complex and thorough texts to be taught in class, it still needs great effort from teachers to modify and accommodate what they have received from ChatGPT to suit their students' mental and educational abilities.

2.2.3.2.2 Gradescope by Turnitin . According to "Gradescope Modern Grading &Assessment Platform", Gradescope is an AI-based application that grades both paper-based assignments and program-generated assessments, whether online or in class. It saves time and enables teachers to have a clear picture of students' levels. However, some users have mentioned that even after having the assignments corrected, they need to review them as some answers, especially the handwritten ones, might not be clear enough for the tool to correct thoroughly and fairly. Thus, human interference is a must.

2.2.3.2.3 Gemini by Google . According to Pichai (2024), Gemini is known as the ChatGPT killer. It can create tables and compare items for teachers. It creates a spreadsheet format. It provides differentiated instructions, factual accuracy, texts, and pieces of research. It can develop the curriculum and provide assessments, learning materials, and constructive feedback. It excels in knowledge-based writing, but ChatGPT excels in creative writing. Gemini can produce content with citations as well, so it can save time and enhance instructions.

2.2.3.2.4 Eduaide.AI . According to “Eduaide.AI: Instruction by Design”, (2024), “there are two main generators: the teacher-assistant and the content generator, which is subject-specific. The teaching assistant tool needs teachers to select their grades so it can provide relevant lesson plans, announcements, and emails. There is a section called “Productivity Tools.”. There is a wellness tool called “10 Minutes of Social Emotional Learning Activities” based on any misbehaviour in the class. There are activities, icebreakers, and mindful tools. For language arts, teachers can generate poems, skits, and reading comprehension texts with questions.

2.2.3.2.5 Canva Presentations . According to “Canva. Presentation Templates”, Canva is incredible tool for teachers to create interactive presentations that will attract students’ attention and increase their engagement levels. According to teachers’ reviews, the presentations’ keyboard shortcuts are best for saving time and effort. The engaging effects are automatically created and added to the presentation just by using the keyboard shortcuts, such as C for confetti, Q for quiet, U for curtain call, and D for drumroll. In addition, when teachers press any number, a countdown timer is created for this time.

2.3 Theoretical Framework

This chapter will furnish the most relevant educational theories that support using AI tools in the educational field, along with other recent studies, because studying the learning theories is crucial for educators to understand and adapt to new learning styles. It will also compare and contrast those theories and provide a critical analysis of each one.

2.3.1 Connectivism Theory

One of the new theories that is closely related to online digital learning is connectivism. It appeared in the 21st century with the emergence of the internet for many reasons. Siemens

(2004) believed that the three broad learning theories of behaviourism, cognitivism, and constructivism are no longer valid in the age of technology as they were developed during a period of time when learners were not impacted by technology. He also discussed a changing term, which is knowledge. He claimed that the learning needs and principles should be true reflections of the age and the social environment. He argued that technology has changed the core nature of knowledge. Consequently, knowledge is obtained not only through the schooling years but also through the learning experience that extends beyond the years of education. He gave an example called "the half-life of knowledge," which argues that some people may spend school years learning about a specific field of information to graduate and work within this field for the rest of their lives, while others change their careers into different fields during different periods of their lives because of the revolution in technology and its trends. Based on the theory, there are eight principles that explain how people learn.

2.3.1.1 Learning and knowledge rest in the Diversity of Opinions. According to Utecht and Keller (2019), the internet nowadays has granted every person a voice. People have now started questioning the facts and the non-facts, and a lot of information previously taken for granted has changed because of this concept. Wikipedia is one example of this principle. Wikipedia statistics (2018) showed that over 840 edits were made on 5.6 million articles, which truly proves the power of learning and knowledge resulting from the diversity of opinions. Although this protocol of Wikipedia has been widely criticized by educators due to integrity and credibility arguments, Utech and Keller (2019) suggested that educators should find new strategies to teach students how to evaluate sources properly, which would correspond with the new era of education.

2.3.1.2 Learning is a process of Connecting specialized Nodes or Information Sources. According to Berners-Lee (2010), if people keep uploading government data, scientific data and community data, etc., and all the different kinds of data onto the web, others will be able to read, review and create amazing new data that no one could have ever imagined. Utecht and Keller (2019) suggested that this principle has provided support for almost all the new apps or web-based software. They all depend on connecting previous data and information sources, then making new meaningful data. Tapscott and Williams (2008) supported this principle when re-discussing the term "Prosumer", which means a person who produces content after consuming another. This is proposing a new literacy skill that is convenient for the digital age.

2.3.1.3 Learning May Reside in Non-Human Appliances. According to Utecht and Keller (2019), AI-powered educational tools have been used greatly in day-to-day classes. Now, students have the power to learn on their own. Google Docs can be used as a simple application of what is now known as machine learning. It can predict the words to be written by the user after combining the previous sentences together. It can even analyze audio and anticipate what is said if it is not pronounced correctly. Utecht and Keller (2019) confirm that the more the service is used, the better it becomes at learning. This available technology has been an advantage for people suffering from physical challenges or students who are struggling.

2.3.1.4 Capacity to know More is More Critical than what is Currently Known. According to the American Society of Training and Documentation (ASTD), the bulk of knowledge in the world has been multiplied by two in the past ten years and is growing significantly. What is proven true today might not be true tomorrow, so according to Utecht

and Keller (2019), the quality and integrity of this multitude of information must be reviewed and evaluated. The protocol for publication and citation must be assessed and updated. Students need to learn the right ways to deep-search the Internet using the right credible search engines. Research methods need to be thoroughly discussed with and applied by the students to get all the perspectives on the researched topic. According to Siemens (2004), the capacity for knowledge does not matter compared to how to understand and apply it.

2.3.1.5 Nurturing and Maintaining Connections is Needed to Facilitate Continual Learning. Siemen (2004) introduced connectivisim as a model of learning that accepts the changes in society where learning is not an individual responsibility anymore. He believed in the influence of collaboration on education. Utecht and Keller (2019) supported this principle with the platform "Twitter" given as an evident example of collaborative learning among students, teachers, administrators, and parents. One hashtag (#) used by K–12 educators was able to collect 20,000 related links from other teachers all around the world, which shows the power of these connections. Utecht and Keller (2019) shared a study that was conducted in an International School in Bangkok, Thailand, where students and teachers experienced the power of collaborative "Notetaking" that extended even after school and during the weekends, through which students shared study guides and explanatory notes before tests.

2.3.1.6 The ability to See Connections between Fields, Ideas, and Concepts is a Core Skill. Utecht and Keller (2019) believed that this principle define the word "learner." from Siemens' point of view. It means that the learner himself is able to see the connections between what he has learned and consequently becomes more active and engaged in the learning process. Being able to connect ideas, concepts, and fields of study is a core skill that

needs to be introduced and practiced with students. According to Alam (2023), students need to acknowledge that knowledge cannot come from a single source and that it is distributed among many networks that they need to navigate through.

2.3.1.7 Currency knowledge is the Intent of all Connectivist Learning Activities. Learning how to find out the most accurate and up-to-date information in the digital age is a huge challenge for students nowadays, according to Utecht and Keller (2019). Students need to learn how to identify the piece of information that is right for them. Utecht and Keller (2019) explain that this principle needs to be closely connected to the first principle of the theory, where students learn from other people, platforms, or applications. According to Alam (2023), learners need to be able to critically analyze and evaluate the data they receive and decide whether it is relevant and reliable. They need to connect not only the nodes of information but also its resources.

2.3.1.8 Decision-Making is Itself a Learning Process. According to Alam (2023), connectivism connectivism is a true reflection of what people and students need in the new century, with all its complexity and connections to social networks. According to Utecht and Keller (2019), news is always breaking and changing what we already believe. Teachers must prepare their students to be “critical consumers” of all the content they receive. They need to choose what to learn and when to learn it so they will be fully responsible for their future. Alam (2023) gives a 21st century example of teaching, which is the flipped classrooms that emerged from this theory. Students watch educational videos and listen to lectures at home to apply what they have learned and use it in discussion groups and classwork.

2.3.1.9 Connectivism and Life Learning . Siemens (2004) justified his theory, connectivism. Based on the following concepts, during his time: First, learning is an ongoing process that lasts for a person's lifetime. Informal learning should go along with formal learning at school, as work activities should not be separated from school activities. Second, many of the previous cognitive learning theories can be supported by present-day technology. It is a matter of where to find the information rather than what it is or how it can be applied in a specific field. According to Shrivastava (2018), George Siemens was supported by Stephen Downes in laying the foundation of this learning theory after he had studied and critiqued previous theories such as behaviourism, cognitivism, and constructivism. Unlike those theories that focus on knowledge as an individual process, connectivism stresses the importance of knowledge as a network that is constantly changing according to its participants. According to Siemens (2004), networks can be examples of people, information, activities, or technologies. Those networks would be connected to create a whole. In other words, knowledge cannot be complete without tying it to other connections. According to AlDahdouh et al. (2015), knowledge is a sophisticated and complex term. It cannot be simply defined as information. In connectivism, knowledge is a set of networks that are related to each other. This definition clarifies the relationship between objects in order to give a full picture of the knowledge needed. For example, students are considered "nodes" in a network that need to be linked to other "nodes" such as books, online courses, web pages, etc.

2.3.1.10 Connectivism and Online Learning . According to Barnett et al. (2013) By the late 1990s, online learning had become a debatable topic among researchers. Like any other new technology, it had supporters and opponents, which made it a topic of urgent study. During that time, many researchers tried to create theoretical models to understand the

learning delivered through new technologies. Students with this new technology were able, for the first time, to self-direct their learning. Previous theories were not able to explain how learning was happening or how teachers would manage integration among critical analysis sources related to technology. Barenett et al. (2013) compared connectivism during that time to a bird breaking out of its shell. Connectivism simply described what was happening. Barnett et al. (2013) concluded that connectivism can act as an umbrella to cover other theoretical approaches and go beyond them. It resolved the limitation of behaviourism by acknowledging that learning is not only about observable behaviour. They also shared the idea that, to know something, you need to be able to do it. The concept of neural networks is addressed in both cognitivism and connectivism, but it goes above all by saying that it is student-centered, problem-based, and peer-assessed. Connectivism shows that learning occurs within a social or technological pattern. It is influenced by the diversity of networks, and those networks need to be linked to nodes in order to achieve complex and rapid learning (Barnett et al. 2013).

2.3.1.11 Connectivism and Artificial Learning . According to AlDahdouh (2017), connectivists claim that this theory supports the core definition of Artificial Intelligence as a group of neurons working together to create knowledge. In addition, the main principle of this theory is that technology is changing all previous concepts, so why not change people's views about knowledge? The theory also infers that learning can be done not only by humans but by machines as well, as long as there is a network with nodes to create relationships that will generate knowledge. This notion is also supported by Downes (2012), who contributed to the theory of connectivism by highlighting the idea of "connective knowledge", where knowledge cannot come from a single place and is the product of connected nodes. In his book, Downes (2012) focused on the network structure of the internet and how it assist students to

accomplish tasks they were not able to do before. Since then, Downes has continued to search for and explain the relationships between neural networks and Artificial Intelligence to indicate their relevance to connectivism.

2.3.1.12 Challenges and Limitations of Connectivism . While connectivism provides opportunities for learners, Alam (2024) claims that there are also a number of challenges to consider before it can be applied as a leaning theory. First, this theory depends mainly on technological tools and applications which require both teachers and learners to be digitally literate in order to participate and learn effectively. Those tools might be expensive and not easily accessible for the majority of teachers and learners. Second, new assessment strategies need to be developed to cope with the new learning strategies because present assessments rely more on individual performance than collaborative work. The researcher suggests that this theory is more applicable to teenagers, high schoolers, and university students than to children in elementary schools.

2.3.2 Constructivism Theory

Constructivism is a learning theory that illustrates that learners need to be active in order to construct understanding and knowledge. It suggests that learners need to build their knowledge on previous experiences. There are many theorists associated with this learning theory, such as Jean Piaget, Lev Vygotsky, and Jerome Bruner.

According to Sjøberg (2010), there are many different meanings for the term constructivism since it is used in numerous fields. In education, it is mainly used to describe the learning and the teaching process, the curriculum development, and the assessment criteria. According to Alyammahi (2020), recently, most educators have depended more on

constructivism, which was created by John Dewey and Jean Piaget. Bada and Olusegun (2015) believed that constructivism is one of the transforming ideas in education. It has reformed education for teachers and students. It is originally a psychology-based theory that clarifies how people learn. Based on the theory, humans learn and acquire knowledge through experience. Student-centered learning, constructive classrooms, and the learning environment are major concerns for the theory. According to Bada and Olusegun (2015), teachers have always been challenged on how to transform knowledge for students. With connectivism, this challenge was transferred to students as they needed to be active users of the knowledge in order to acquire it. According to Phillips (1995), there are two facts about learning. First, learning is constructed, which means that it is built on previous foundations. Students will have the knowledge, and through situations, they will be able to learn. This leads to the second fact that learners must be active in learning; they need to discover and apply relevant factors in new learning experiences.

2.3.2.1 Constructivism and Collaboration . According to Tam (2000), students learn through two types of collaboration: collaboration with peers and collaboration with teachers. Teachers provide students with a context for learning, which could be a solvable problem that needs group effort and inexpensive equipment. Teachers need to present learning in a realistic context. Students need to apply their own knowledge and discover more relevant information to find a solution to the problem. The conversations among students and with the teacher to find solutions enhance the learning process. Constructivism promotes students' questions and explorations. It helps them transfer the knowledge to their real lives. Their social and communication skills are enriched through this collaboration. Students learn how to express themselves, negotiate, exchange ideas, and evaluate their choices and contributions. They are

also able to use modes of presentation like videos, Power Point Presentations, and audios to present their work.

2.3.2.2 Constructivism and Technology. In their paper, Nanjappa and Grant (2003)explored the relationship between constructivism and technology. They confirmed that learning happens through experiences that technological tools can provide or create. They claimed that almost all recent researchers are trying to connect technology to constructivism to enhance the learning process. They concluded that there is a harmonious relationship between both constructivism and technology. The teacher's role as a facilitator and a guide is supported by a lot of technological devices and applications that facilitate students' access to knowledge, and with the guidance of the teachers, students can apply and construct this knowledge. According to Nanjappa and Grant (2003), constructivism has influenced problem-based learning, inquiry-based learning, and collaborative learning. Research has shown that there are positive outcomes when integrating technology with cognitive activities. In constructive classes, technological tools can be used to enhance students' learning skills and problem-solving presentations.

2.3.2.3 Constructivism and Artificial Intelligence . According to Thorisson (2009) there is a current approach to AI called the constructivist approach, in which scientists are trying to solve problems related to AI according to previous experience or research. This approach is specifically used in robotics. Scientists are trying to use this approach exactly as it is with humans. Robots are supposed to construct knowledge according to self-generated knowledge, codes, to overcome the limitations or inconveniences of the present methodologies or behaviours. Constructionist AI means creating AI multi-purpose machines that integrate

knowledge and generate new possibilities. According to Lesh and Kelly (1996), researchers nowadays are working on constructivist AI methodologies that will focus on self-constructing knowledge. AI systems that promote personalized learning and active engagement in education are being developed by scientists and researchers to enhance the educational experience for students. In constructivism, AI tools such as Knewton and Squirrel AI Learning are tutoring systems based on adaptive learning and constructivism. Google Workspace for Education and Microsoft Teams AI-based features are promoting collaboration and constructivism. However, Thórisson (2009) encourages designers of AI educational tools to create new devices that can go beyond simple knowledge and that can support students' higher thinking and problem-solving skills.

2.3.2.4 Challenges and Limitations of Constructivism . Karagiorgi and Symeou (2005) suggested that constructivists believe that every learner has unique potential, so learners can learn different things to make different choices. In this case, the learning process becomes questionable because this raises the question of the importance of having a specific level of knowledge to build upon since constructivism places high value on students' prior knowledge. The traditional instructional approach depends on analyzing content, learners, and learning settings to predict learning outcomes, while constructivism focuses on creating environments that naturally include knowledge and experience without dividing the context into parts, so educators cannot predict learning outcomes. In constructivism, there is no pre-specifying instructional content, so the process of understanding the knowledge can be negotiated. Another limitation is that constructivists do not believe in external objectives or goals for the learning process; objectives emerge from authentic tasks, so teachers cannot teach specific content, which is highly challenging for teachers. Applying constructive

activities is time-consuming for both teachers and students, and educators cannot predict how long students will need to learn a specific cognitive skill. Another challenging issue that might be related to constructivism is teaching about complex or abstract concepts, as they cannot be easily assimilated in real-life situations. The researcher believes that integrating technology may help in overcoming such limitations, as new AI tools are designed to save time and effort.

2.4 Review of related literature

2.4.1 Artificial Intelligence and Ethics

Although Artificial Intelligence has been present for a long time now, it is still a debatable topic, especially when it comes to the ethical code of conduct that governs how this new technology will be used and to what extent it can reveal the secrets of humanity. According to Bostrom and Yudkowsky (2018), since AI is a human-generated machine that will act like a human, it needs to be governed morally and ethically, highlighting the issue of not harming humans. Anderson and Anderson (2011) also stressed the importance of creating machine ethics as the next step in the AI path because they are still not clear.

Transparency is one of the desired ethics when it comes to Artificial Intelligence. According to the dictionary, transparency means that people are able to see what actions are taken. It refers to openness, communication, and accessibility. Bostrom and Yudkowsky (2018) gave an example of an AI working bank responding to requests for loans, and he explained that it would be very difficult for people to judge why those AI machines had accepted or refused those requests, especially if they were accepted according to the social needs of the applicants. He wanted to prove that although those tools would act like humans, they still could not develop any sense of social justice.

Responsibility and accountability are other ethics that need to be discussed and implemented when AI machines take over. Bostrom and Yudkowsky (2018) asked how to find the person who is responsible for making a specific mistake at work, not only to apportion blame but to learn from and fix the mistakes. With AI tools, it is really difficult to find out who did what. He also raised the issue of admitting mistakes. Till now, it has been difficult to identify whether the mistake would be on the shoulders of the programmers, the users, or the companies that built the AI machine.

Minimizing harm and being against manipulation are two important ethics as well. AI machines need to learn how to make ethical decisions and identify actions that might hurt or even harm any living thing (Bostrom and Yudkowsky,2018). In addition to that, privacy, replication, and bias are three different ethics discussed by Alyammahi (2020) as the main limits for any organization to consider before applying AI.

2.4.2 Artificial Intelligence and Independent Learning

According to Meyer et al. (2008), the independent learning approach is strongly associated with other approaches, such as personalized and student learning approaches. These approaches tend to develop and build on skills that students already have but which they cannot excel in. Independent Learning approaches can work effectively and closely with technology, so the use of Artificial Intelligence can be highly recommended. There are many benefits to independent learning, such as increasing motivation and confidence, improving academic performance, and finding successful resolutions to students' limitations.

Meyer et al. (2008) stated that teachers can promote independent learning using the following five strategies: scaffolding, self-monitoring opportunities, categorizing information, providing feedback, and developing communication. These strategies can be supported by AI

tools such as IXL, Grammarly, ChatGpt, etc., because they are able to provide students with the needed help in order to complete a task, offer step-by-step procedures, group the required information, and give students instant feedback on how to excel in or improve the task they are working on. Teachers only need to choose the right tool that suits students' needs.

2.4.3 Artificial Intelligence and Personalized Learning

It is suggested by Reiss (2021) that AI enables personalization in learning. AI will solve the two problems of class sizes and the quality of personalized teaching strategies. Students will still attend classes, but will enjoy a special programme for their needs to learn and grow. Reiss's research showed that students in schools were able to achieve academic progress when using personalized learning strategies over the course of two school years. It also demonstrated that those students who were struggling with learning difficulties were able to perform better in national exams. He highlighted the importance of each student receiving a differentiated and personalized instruction plan to match his needs, skills, and interests. At the same time, these plans need to align with what the students need to learn better and what is expected of them.

2.4.4 Artificial Intelligence and Adaptive Learning

According to Kruger (2020), adaptive learning strategies have been rapidly appearing since the 21st century started. Those strategies start with the students setting goals for themselves before taking a series of actions to improve their levels and reach their aims. Technology has helped a lot since many tools, especially AI, are promoting those strategies. Kruger claims that it is getting difficult these days to accommodate all students since they come from different educational and cultural backgrounds, so educators are badly in need of tools to somehow compensate for those differences. It is becoming crystal clear that the "one-

fits-all approach" with all the challenges is not effective anymore. Teachers are confused by the choice between knowledge and creativity. Thus, increasing the use of AI tools is creating better learning opportunities that suit every student according to their levels and what they need. It is clear now that adaptive learning can go hand in hand with e-learning, especially for struggling students who still need to build on their knowledge. Finally, in order to achieve effective learning, adaptive learning tools must be utilized in the educational field. According to Small (2023), the top 10 adaptive learning supported platforms for 2023 are EdApp, Adaptemy, Knewton, CogBooks, Realizeit, Smart Sparrow, Pearson Interactive Labs, Adaptive Learning, Designing Digitally, and Impelsys Scholar ALS.

2.4.5 Artificial Intelligence and Game-based Learning

According to Nguyen (2023), educators need to combine game-based learning strategies with education to create enjoyable and interactive learning opportunities for students since more than 65% of Americans play at least one hour of video games a week. Educational AI games can help students take the right actions to improve their educational skills. Games provide direct feedback and predict performance, and they provide engaging and interesting sources of information. The game-based learning approach is strongly associated with adaptive, self-directed, and personalized approaches. According to Neendor (2023), there is a list of five effective AI-powered educational games that are able to enrich students' understanding and enhance critical thinking skills. The first one is Minecraft: Education Edition. It is a highly engaging block-based game that includes teaching tools with tutorials. It is easily accessed by students and teachers through iPads, Macs, Windows, and Chromebooks. The second one is Duolingo, which is available on the App Store and Google Play. Students are able to learn languages through real-life situations to improve their communication skills.

What makes it popular is that students can learn according to their own space and level. The third one is Kahoot! This AI tool is highly interactive and engaging. It supports a competitive and collaborative learning environment through themed tests and quizzes. The fourth tool is the Osmo-Genius Starter Kit, which promotes physical and digital activities. The last one, according to Neendoor (2023), is Zoombinis. It includes a wide range of complex puzzles that focus on improving the students' cognitive skills.

2.4.6 Artificial Intelligence and 21st Century Learning Skills

According to Silber-Varod, Eshet-Alkalai, and Geri (2019), learning about and using technologies in the present time is an essential component of the educational process. Recent studies have shown that in order to effectively benefit from those technologies, teachers and students need to excel in many cognitive and socio-emotional skills called "Digital Literacy competencies" or "21st-century skills". There are seven skills: Critical thinking, creativity, collaboration, communication, information literacy, problem-solving and socio-emotional skills. Trisnawati et al. (2023) concluded that Artificial Intelligence has a great impact on 21st-century skills in education. AIED tools support the learning process. Students are able to collaborate with each other effectively using AI. Critical thinking and creativity are touched upon in many educational activities. Communication is also effectively promoted through language models such as ChatGPT and others. Problem-solving skills are supported for both teachers and students when using AIED. For example, teachers are able to use AI to generate individualized lesson plans according to accurate data generated by AIED tools. Tutoring AI systems provide teachers with adaptive teaching strategies, lessons, and activities that are appropriate for students' needs. Trisnawati et al. (2023) add that using AI assessments and

marking tools has made it easier for teachers to focus on other in-class teaching. Students show higher engagement levels when using AI tools.

2.4.7 Artificial Intelligence and Inclusion

According to Kumar et al. (2023), AI has proven its usefulness in many industries, including education, where traditional educational techniques and tools are no longer effective in surmounting the challenges that students with special needs face. AI tools have empowered those students with tailored and personalized support and instruction. AIED tools have provided students with all kinds of impairments with solutions to overcome their problems and get better education chances. Live chatbots, class-dictation software, verbal command-based eBooks, and image-based learning have revolutionized the teaching and learning experience for both teachers and students.

However, Kumar et al. (2023) still encourage researchers to conduct further studies to examine the impact of AIED tools on students with special needs in real life. According to Asad et al. (2023), Artificial Intelligence has been proven to provide students with special educational needs with easy access to the knowledge they have suffered to obtain, either because of its difficult terms or their dyslexia when reading. Those students have been offered courses with audio correction features when reading and differentiated texts with the same content.

2.4.8 Artificial Intelligence and Challenges

According to Trisnawati et al. (2023), AI has affected teachers and students negatively. Zawacki-Richter et al. (2019) concluded that teachers and students have become lazier than before because of the existence of multiple AI tools that will automatically do the jobs for them. Wang and Cheng (2021) suggested that one of the negative impacts of using AI is the

elimination of the number of human jobs. Schools and other places may replace administrators with AI tools. Common sense will be missed in many tasks as AI cannot have a complete understanding of a whole process like humans. It can just work according to a program or a group of instructions that cannot be exceeded. Finally, Trisnawati et al. (2023) explain that no matter what advancements happen in the field of AI, those tools will remain inferior to their creators. They will definitely be faulty like any other thing made by humans. Finally, Trisnawati et al. (2023) conclude that it is important to adopt new technologies, but humans need to perceive that they will always have positive and negative effects.

2.5 The Value of the Current Study

After studying and analyzing the existing literature on Artificial Intelligence in education, it is obvious that conducting this research will improve teaching and learning skills by examining and applying students' and teachers' preferred AI tools. It will also contribute to the field of knowledge on AI in education. Educational institutions can be informed about effective AI resources that can be utilized to achieve learning opportunities for both teachers and students. In addition, this is a new area of research that requires further study as new technological AI tools are appearing every minute.

AI tools are creating challenges for teachers every day so it's important to study how teachers view these challenges and how educational organizations can help in overcoming these challenges. This will also contribute to enhancing AI pedagogy, a new term, by understanding how teachers perceive effective AI tools.

Chapter 3: Methodology

3.1 Overview

According to Mohajan (2018), the main objective of this chapter is to present a comprehensive understanding of the research methodology deployed to answer the research questions through the application of reliable procedures. Another main goal is to become familiar with new phenomena and gain new insights. This chapter will illustrate the approach applied in this research paper and provide a logical explanation for the research design. It will also give adequate background on how the survey questions were answered and critically analyzed. The researcher will explain the context, the site, the population and the samples used in the research. The instruments used will be discussed using the validity and reliability processes. The researcher will clarify how the results were obtained and analyzed without bias. Ethical considerations of the study will be described and discussed based on the British University in Dubai ethics form.

3.2 Research Approach

The current study aims at investigating high school teachers' and students' perspectives on the use of AI tools to overcome educational challenges. It also aims to investigate the most effective tools used so far in education from the teachers' and the students' points of view. The focus of this study was on TESOL contexts, which are related to teaching English to speakers of other languages. To explore the teachers' and students' perspectives, the researcher has chosen a mixed method as the intended approach in this study. Any research must undergo one of the three research approaches: the quantitative, the qualitative, or the mixed method. According to Bell, Bryman, and Harley (2022), the mixed method is a good way to avoid the weaknesses of the other two approaches. Although

qualitative data provides a better understanding of the participants' opinions and experiences, its outcome is generally unmeasurable and uncountable (Hammarberg, Kirkman, and de Lacey, 2016). Qualitative data is collected through open-ended survey questions, while quantitative data is collected through closed-ended questions that have specific answers for participants to choose from. Accordingly, the data can be measured and counted. Then, the qualitative data will be thematically analyzed.

3.3 Data Collection Plan

This paper follows the concurrent approach, where qualitative and quantitative data is collected at the same time from teachers and students and analyzed to get a deeper understanding of the research questions. The questions for the surveys were written on Google documents and then transferred through AI-powered tools to Google Forms. Minor modifications were made to ensure the credibility of the process. The study was conducted among teachers and students in the U.A.E. Survey links were shared via WhatsApp groups. 30 teachers and 45 students participated in the surveys. Males and females participated, but only students above the age of 15 years old participated in the survey because they were able to give their own consent to the researcher. Teachers from more than seven schools participated in the survey: Al Ittihad National Private School, City American School, Charter School, ESE, Liwa International School, St. Mary Private High School, and others where teachers preferred not to mention their names the answer to this question was optional. For the closed questions, the researcher used the Google Forms charts to study and analyze the data. For the open-ended questions, the researcher used coding to divide the data from the participants.

3.4 Instruments

According to Mohajan (2018), validity and reliability are two important factors that contribute to the evaluation of a qualified research paper. What the survey measures and how well it does it are two basic concerns for the validity of the research paper. In addition, reliability defines the ability of the research tools to regenerate the same responses if used multiple times without being affected by "random errors". First, the surveys contained closed-ended and open-ended questions, which generated a more well-rounded set of responses. First, Zohrabi (2013) explained that closed and open questions complete each other in a questionnaire and provide a reliable image of the whole result. Second, the teachers' survey was designed based on the teachers' survey done by Dr Ayshah Alyammahi in her thesis, "Investigating the Impact of AI-Powered Digital Educational Platforms on Students' Learning and Teachers' Practice in Abu Dhabi Schools." According to Alyammahi (2020), the main survey was conducted using a paid subscription on SurveyMonkey, and the responses were automatically collected anonymously, which provided a transparent and clear description of the results. Noble and Smith (2015) stated that collecting the data from participants automatically without the researchers' interference increases the validity and reliability of the data. It ensures no biased interference, and it helps in giving depth and relevance to the data analysis. Alyammahi's (2020) survey was preceded by a pilot study of a small sample of participants and was analyzed by the IBM Statistical Package for the Social Sciences (SPSS, version 20.0). The students' survey questions have been adapted from the survey done in the study titled "What Do Healthcare Students Want to Know About Artificial Intelligence? A Canada-Wide Survey," authored by Teng et al. (2021).

3.5 Data Analysis Plan

This data collection process will enable the researcher to gain a comprehensive understanding of high school teachers' and students' perspectives on the effective use of AI tools in overcoming challenges in TESOL contexts in this case study at a private school in the Emirate of Abu Dhabi. The qualitative data and the quantitative data share the same importance and priority in this dissertation. No type of data is favoured over the other. The researcher placed the same effort into studying and analyzing both sets of data. Both the teachers' and the students' surveys included closed- and open-ended questions. Both surveys will be studied thoroughly and described critically to address the objectives of this research paper.

3.6 Ethical Considerations

The ethical considerations are addressed throughout the data collection process. Informed consent was obtained from all participants through emails or WhatsApp messages, ensuring that they understood the purpose of the research and their rights to privacy. The researcher abided by the ethical proposal that was approved as low-risk research by the Research Ethics Panel at the British University in Dubai. The researcher will make sure not to disclose any personal information about the participants. This is written in the consent form. The data will be saved in a password-protected file that only the researcher has access to. The researcher will make sure that no harm or stress is caused to students and teachers who are able to stop or not continue the surveys if they want. They can do the surveys during their free time or anytime they choose.

3.7 Trustworthiness/Reliability of the Data, Site, and Samples

This study focuses on the teachers and the students in the UAE. The researcher used the research questions in the surveys to collect the intended information from the primary sources, which are the surveys. Participants were recruited through purposive sampling. Invitations to participate were sent to eligible teachers and students, and informed consent were obtained from all participants. The researcher shared the surveys with students enrolled in TESOL classes and who vary in their levels of English proficiency. Teachers were chosen according to their experience in teaching English to speakers of other languages and their diversity in terms of age, gender, and teaching experience. The researcher will ensure that no personally identifiable information is disclosed in the research findings. Participants were informed that their participation is voluntary and that they may withdraw at any time.

Chapter 4: Results, Analysis and Discussion

4.1 Overview

This chapter will present the results of the quantitative and qualitative data collected from the two surveys conducted by the researcher for teachers and students. It will also provide a clear overview of the empirical findings through charts and tables to clarify the key findings. The results will be analyzed and interpreted according to the research questions:

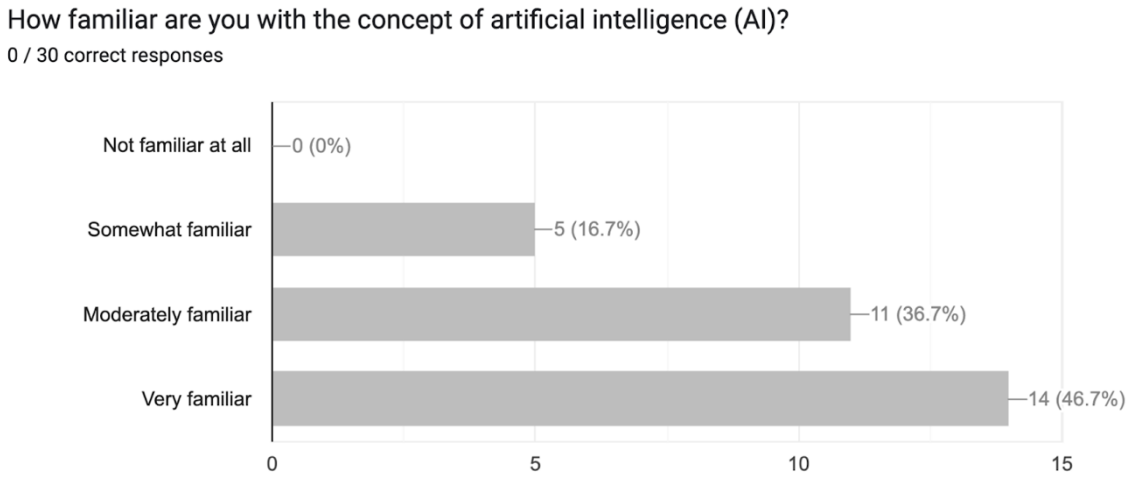
1. What are teachers' and students' perspectives of using AI tools in education?
2. What are the effective AI tools used to overcome the current educational problems faced by teachers and students in the UAE?
3. What benefits are observed from using AI tools in TESOL teaching?
4. What challenges or limitations have they encountered in using AI tools in TESOL contexts?
5. What suggestions would be added to those tools or new educational requirements that may be needed for both teachers and students?

4.2 Results and Analysis of Quantitative Data / Teachers' Survey

In this survey, 30 experienced female and male teachers responded to the questions using Google Forms questionnaires, and then the results were exported into Excel sheets for more clarity and precision. All the teachers are TESOL experts who teach English to speakers of other languages. The most important charts will be shared and discussed while the rest of the charts can be found in the appendices.

Figure 1

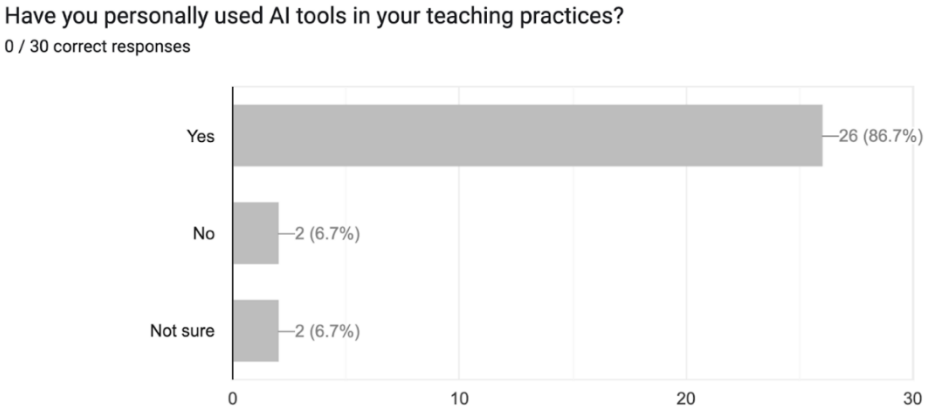
Familiarity with the Concept of AI



According to this question of the survey, 46% of the participants consider themselves very familiar with the concept of AI in general, while none of the participants are not familiar at all which may suggest a strong amount of understanding and clear interest in the topics related to this field. It also highlights the need to develop this knowledge in the educational system since the sample is mainly teachers. Additionally, 36% of the participants have also shared that they are moderately familiar with AI which shows the discrepancy in familiarity; some might have a deep or superficial understanding.

Figure 2

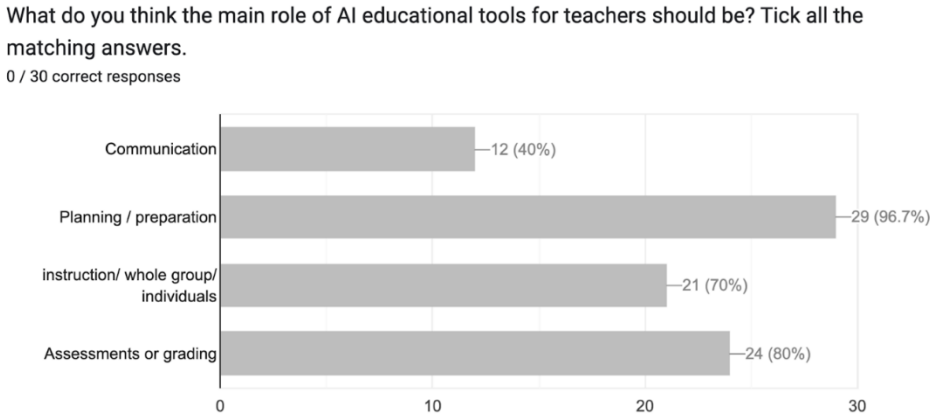
Using AI in Teaching Practices



The chart shows that 86% of the respondents have used AI tools in their teaching, which shows that a good number of teachers are integrating AI in their teaching to work smarter, not harder. However, only 18% of them believe that students need to learn about AI tools and their ethics in schools before using them, which raises doubts about the eligibility of students to use AI tools.

Figure 3

Main Role of AI Tools



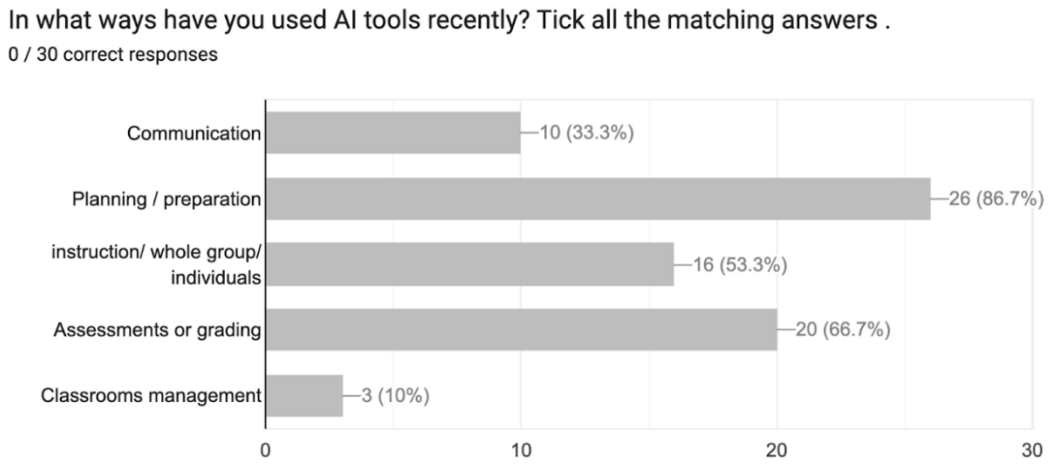
Here, 96% of the respondents suggested that AI tools should mainly be used for planning and preparation before lessons. This shows that a good number of teachers are integrating AI into their teaching practices. Only 40% thought that AI could be used for communication in teaching which proves that more surveys or interviews might be needed to identify teacher's concerns, motivations and experiences about AI. While 70% of the participants are using AI for individual and whole group instruction, only 40% are using it for communication.

This percentage assumes that teachers believe that AI tools are more effective in providing personalized instruction, delivering content and facilitating learning activities. On the other hand, the lower percentage using AI in communication may show that teachers have not discovered how to use AI effectively, or they prefer traditional ways of communication. This might raise the need for more investigation and exploration in this area as teachers may greatly benefit from using AI in communication such as providing feedback or communication with AI tutors to improve speaking skills. This might also be related to the limitations of AI such as matters of privacy and ethics.

Of the participants, 80% think that AI should be used for assessments and grading. This high percentage may be linked to the huge number of AI game-based assessment tools appearing and being advertised in the markets. Preparing, conducting, and correcting assessments has always been overwhelming for teachers in traditional ways, but now many AI tools have helped reduce this hectic workload for teachers. The tools can also be fun, engaging, and interesting for students, while at the same time being easily accessed and used by teachers. It can save hours and tonnes of effort and time for teachers.

Figure 4

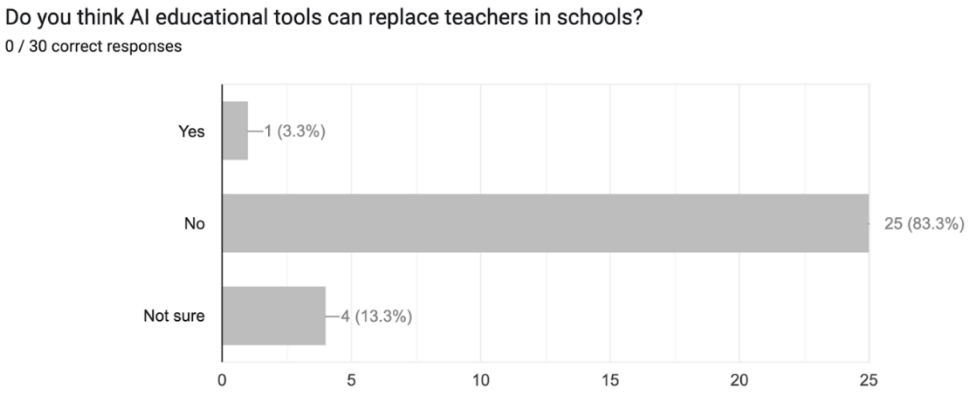
Ways to Use AI in Education



The chart above shows that 86% of the participants have already used AI tools in planning and preparation, which is the highest percentage, while the lowest percentage, 3%, has only used them for classroom management. This might suggest that educators are more keen on finding ways to help in planning and preparation due to the burden they cause, while they might not have a problem with classroom management and need ways to help with it. It might also suggest a lack of AI tools used inside the classroom to manage students. However, 66% of the correspondents have used AI tools in assessments and grading which places a high value on these tools being used in the educational sector.

Figure 5

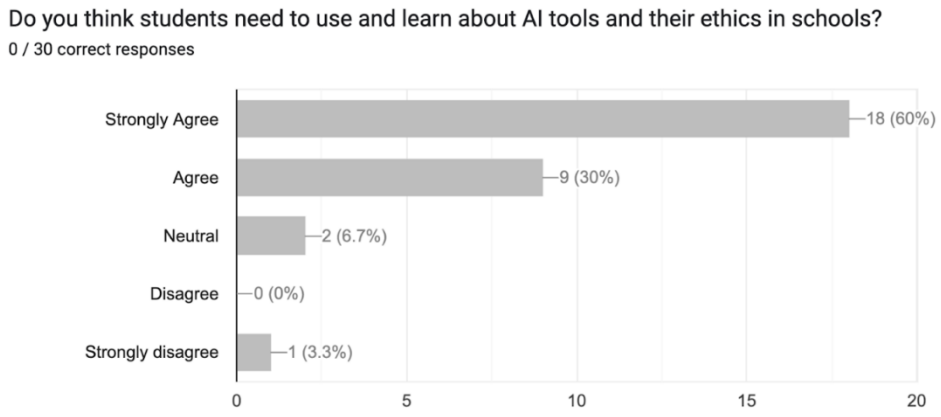
Replacing Teachers



This chart is directly related to the first research question about the perspectives of teachers on using Artificial Intelligence in education. A total of 83% of the sample believe that AI will not replace teachers in schools. This may show that teachers perceive AI as a tool to help them teach, not as a replacement. 13% of the teachers are not sure if AI will replace teachers or not while only 3% think that it will replace teachers. This data raises the need to further inquire about teachers' perspectives on the role of AI in education.

Figure 6

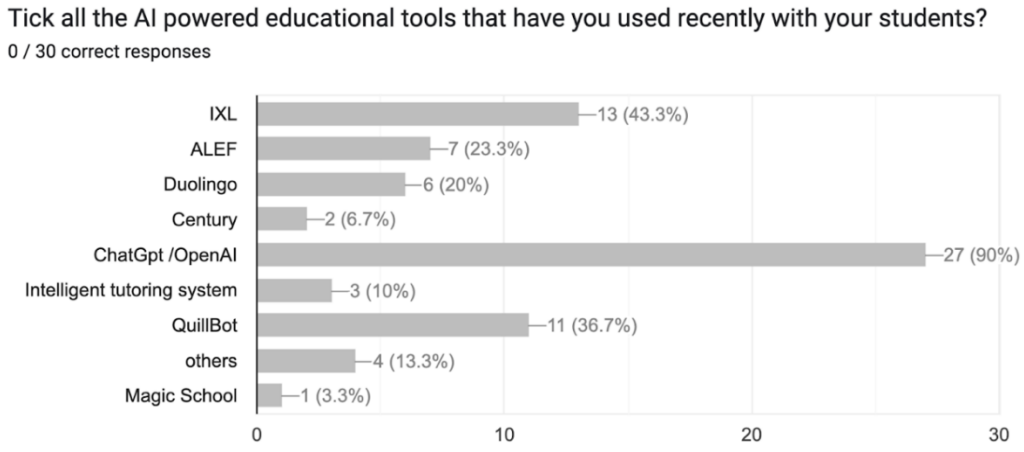
Ethics of AI



Of the teachers in this survey, 60% thought that students need to use and learn about AI tools and their ethics in schools, which means that teachers support the growing field of AI in education. They recognize the need for their students to be equipped with AI knowledge to develop and improve their education. Moreover, 30% agreed, which also refers to the need to teach students about the ethics of using AI in education. Since AI has been proven to promote 21st-century skills, teachers here prove that they care about preparing their students to face the job market and the constantly appearing challenges, especially in technology. This high level of approval for the need to teach students about AI and its ethics indicates that teachers and students should be receiving adequate training concerning this topic. In addition, new pedagogy in learning should be supported by a new curriculum to support this field for both teachers and students.

Figure 7

AI Powered Educational Tools



This chart shows that 90% of the sample of teachers have used ChatGPT in education. The high percentage has many interpretations that can be related to the literature

review of this paper. According to research, ChatGPT has offered teachers a lot of benefits and proved its accessibility and usefulness. IXL has reserved the second place, with 43% of participants using it. QuillBot followed in third place with 36% of participants. Other AI-powered tools were also used by teachers such as ALEF, Duolingo, Century, Magic School and others, but with lower percentages.

4.3 Summary and Discussion of Quantitative Results

According to the data collected, the majority of the teachers have shown positive perspectives towards the usage of AI tools in education. They have agreed that they are able to overcome the challenges that faced them as English teachers such as engagement and motivation, diversity of language and proficiency levels, personalized learning assessments, and limited resources. They called for the need to teach students about the ethics of using AI in education. They agreed that it is beneficial for students to use AI, but with guidance as they may spend too much time using AI at the expense of other effective learning methods. Teachers also shared their concerns about having inadequate protection in place to protect students when they use AI tools. Teachers have confirmed that AI tools have given them good insight into what their students know and that they have provided them with more educational activities that would assist them with the challenge of having limited educational resources and activities. The majority of teachers have agreed that AI tools have helped their students learn more effectively than they would without them. Some teachers have also claimed that their students may know the ethics of using AI in education, but they might not abide by them completely.

4.4 Results and Analysis of Qualitative data / Teachers' Survey

Open-Ended Questions

The results and the analysis will be presented in the following tables:

Q. 1: In your opinion, what are the most effective AI tools used to overcome the current educational challenges faced by TESOL teachers?

For this question, after analyzing the answers thematically, the majority of teachers have chosen ChatGpt as the most effective AI tool used in surmounting the current educational challenges. Other applications, such as Education CoPilot and the Lesson Plan Generator, were also selected as effective tools. IXL and Generative AI tools have been added to the list to show the diversity of opinions.

Q 2: What benefits have you observed from using AI tools in teaching?

The responses to this question explained the variety of benefits of using AI tools in education. These benefits can be aligned with the existing academic literature on the subject. The responses can be categorized according to the following themes:

1. **Time and Effort Saving**

Most teachers confirmed that using AI tools has saved them time and effort. It gave them faster and more oriented answers to questions. It also gave immediate and better responses to teachers' questions. It helped in generating lesson plans, which used to take teachers long periods of time. Some teachers confirmed that AI tools make the evaluation and assessment process easier for them, and that AI can autograde assignments, thereby reducing the time teachers spend evaluating work. It is generally noted that AI tools have helped teachers manage their time effectively, allowing them to focus more on the actual experience of teaching inside the classroom.

2. Effective Teaching Strategies

Some responses suggest that AI tools provide teachers with a variety of individualized and differentiated activities. It helps provide teachers with ideas to create worksheets and specific exercises for students. It is proven to help teachers get the suitable questions for the assessment process before explanation, so teachers can guide students thoroughly while teaching them.

3. Student Engagement and Learning

Another response showed that “virtual tutors can also handle common student questions and concerns, allowing educators to focus more on complex concepts and critical thinking”. Activities that are generated by AI tools are “focused and oriented“. It is also noted that AI tools helped improve students’ language and communication skills.

4. Resourcefulness

AI tools are appreciated for providing good examples, summaries, and models that are needed during the explanation process. They are proven to provide teachers with a variety of easy, applicable, and immediate activities and ideas.

5. Individualized and Personalized Learning

Teachers highlighted that AI tools provide numerous individualized and differentiated activities. They helped provide teachers with ideas to create differentiated worksheets and specific exercises for students.

Q 3: What are the challenges that you have recently faced when using AI in teaching?

The thematic analysis of the data concerned has shown that there are many challenges and limitations concerning applying AI tools in education. These challenges include the following:

1. **Students' Understanding and Application of the Generated Data**

Some teachers in the survey have shared a common challenge, which is students' difficulty understanding the content that has been presented by AI tools. Some students are not able to fully comprehend the answers given by AI tools due to complexity or style, so they just copy and paste the information, breaking the ethics of integrity.

2. **Readiness**

It has been noted that AI tools have not been completely developed to be used by students for many reasons. For example, some of the students cannot figure out the tools potential or are not able to address the AI tools appropriately.

3. **Accuracy and Reliability**

Some responses have shown that students have encountered wrong information or grammar and punctuation mistakes when using AI generated content. Teachers have noted that there is a lack of reliable results presented by AI tools.

4. **Ethical and Academic Integrity**

It is commonly shared that students need to learn about the ethics of using AI appropriately in producing answers and pieces of writing. Due to the lack of highlighting the importance of honesty and integrity in using intellectual property, students are just copying and pasting the content they did not put any effort into.

5. Students' Engagement

Using AI proved to be a double-edged sword. In the previous questions, teachers explained that using AI tools can increase students' engagement, while in this question, teachers have listed students' engagement as a challenge, clarifying that students are getting distracted while using AI tools.

6. Safety

Due to doubting the reliability and the readiness AI tools, the requirement for safety concerns needs to be addressed when using AI tools. Since AI tools are still under development, safety challenges cannot be predicted.

Q 4: What suggestions or rules would be discussed before using AI tools in education?

The suggestions and rules given by teachers for using AI tools in education highlight the importance of creating a new pedagogy that addresses the needs of students and teachers while using the new technology. The suggestions can be divided into the following:

1. Critical Thinking and Evaluation

Some teachers highlighted the importance of raising students' awareness about the credibility of AI-generated content. Students need to learn not to trust anything without evaluating and assessing it. They need to understand that AI tools are here to assist them, not to replace their brains. AI tools can be used as a search engine to help in the process of learning and researching information, not as a final destination to be taken for granted.

2. Objectives and Criteria

A good suggestion was raised about setting goals and objectives for using AI tools. Students need to decide the reason behind using AI tools in learning. AI tools should be more controlled when used by students.

3. Ethical Considerations

The issue of ethics and integrity has been highlighted mainly by teachers in the closed- and open-ended questions of the survey. Students are depending on AI to do what they are supposed to do. They are copying and pasting, " cheating" with the answers or the essays presented by AI tools. Teachers need a clear ethical code of conduct that must be taught and signed off by students before using those tools.

4. Training and Support

It is clear that teachers should be supported by the appropriate training to be able to cope with the new technologies that are appearing every second. They need to learn how to manipulate those tools for the benefit of their students.

5. Moderation

Moderation in using AI tools or technology in general is a requirement for teachers. Students need to restrict the time spent using these new technologies. They need to use them in moderation in order to be able to experience and build other skills. Some responses even called for device-free days.

6. Plagiarism and Transparency

Plagiarism and transparency are closely related to learning about the ethics of using AI tools. Without a proper understanding of the ethics that govern the use of technology, students will be subject to committing plagiarism. Teachers suggested that AI tools should be allowed

during non-graded activities only. Students need to use them as a way to help them learn, not as an end to the learning process.

Q 5: What is an AI tool that you wish was invented to help make your job easier?

Teachers have listed a lot of AI tools that they wish were invented to help them in the educational contexts. Those wishes can be analyzed according to the following themes.

1. **Efficient Lesson plan and presentation Generators**

To elaborate on teachers' perspectives of the most effective tools to overcome educational problems, teachers have recommended that there is still an emerging need for a specialized AI tool that is able to create detailed, individualized and differentiated lesson plans based on students' academic levels and progress in the formative and summative assessments and with the activities needed to implement its objectives. There is also a desire to have content and organizational tools that would save teachers' time and effort.

2. **Efficient Assessment, Evaluation and Grading Tools**

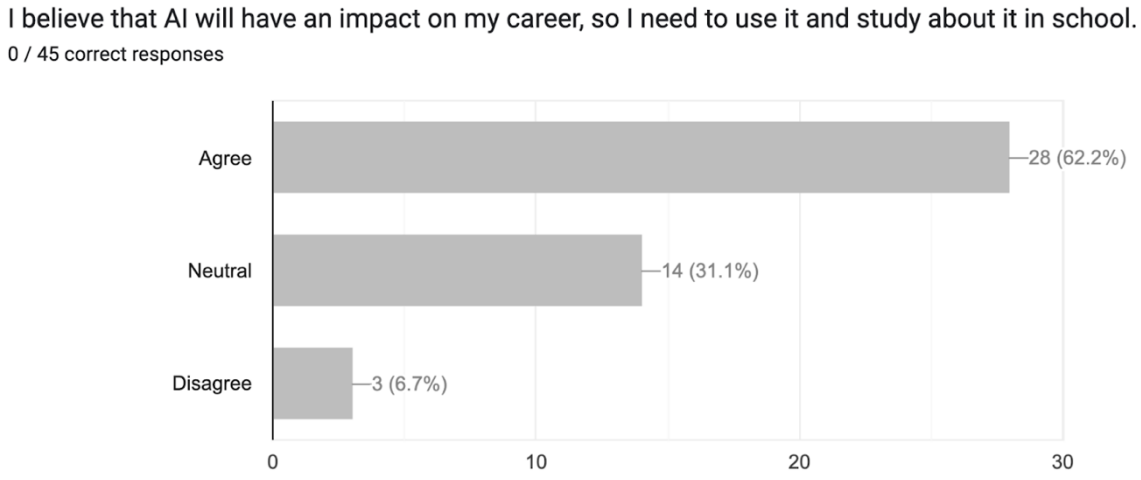
The majority of responses highlighted the need for automated assessment tools based on the objectives and the students' needs. Some responses also wished for grading tools and constructive feedback generators. There is a response that highlighted the need for having AI tools that will keep the students focused on one task or activity, for example, a tool that will prevent students from navigating to other websites while doing a quiz or an exam. This would help in managing students' learning and behaviour. It would guarantee effective classroom practices and minimum distraction.

4.5 Results and Analysis of Quantitative Data / Students' Survey

Forty-five students have answered the questions in the survey. The most important information directly related to answering the research questions will be displayed and analyzed thoroughly. The rest of the answers will be summarized in the discussion section.

Figure 8

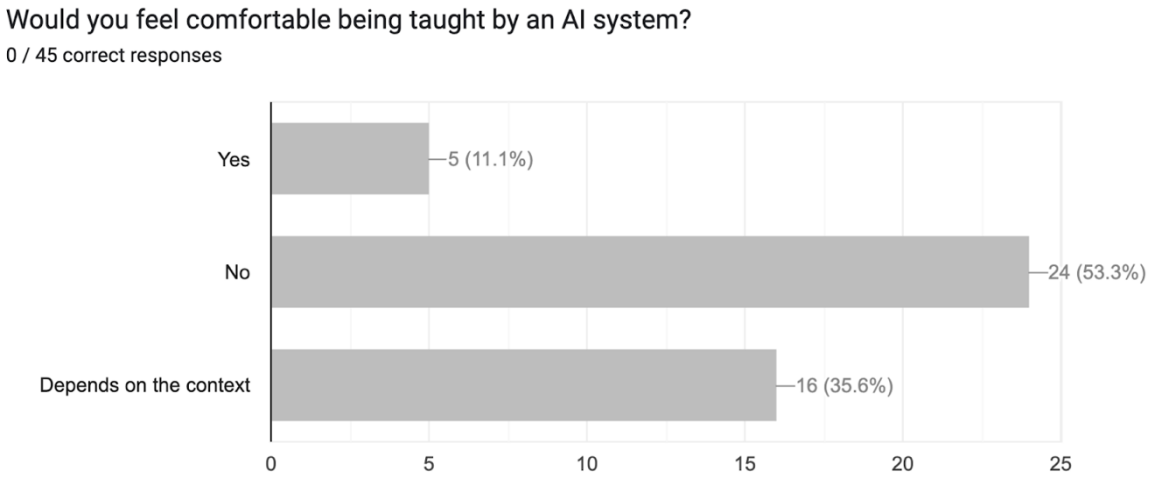
Impact on Career



The majority of respondents seem to believe that AI may have an impact on their career and that they need to study about it in school. This means that those students are aware of the job market and all the technological changes that are happening in the present time. The result in these questions should be taken into consideration. Educators and school leaders need to direct their attention towards implementing new pedagogies that would help students build knowledge and skills in this field. However, the variability in responses that is shown in the choices of " Neutral" and " Disagree" shows that individuals still have different opinions about the same subject. At the same time, this may show that those students do not have the same awareness as the others of this topic.

Figure 9

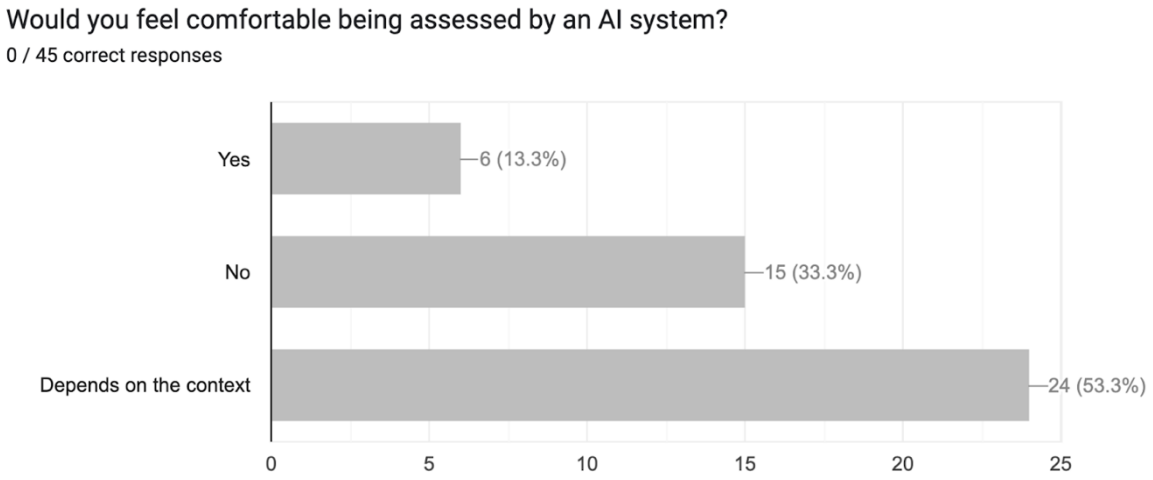
Taught by AI



Fifty-three percent of the students seem to feel uncomfortable with the idea of being taught by an AI system, but 11% would accept this idea. The rest of the responses showed that the level of comfort would depend on the context. The responses here are directly related to the research question about the perspectives of students towards AI in education. The results show that although there are potential benefits of AI in education, educators and students still need flexibility and transparency in accepting and fostering these systems.

Figure 10

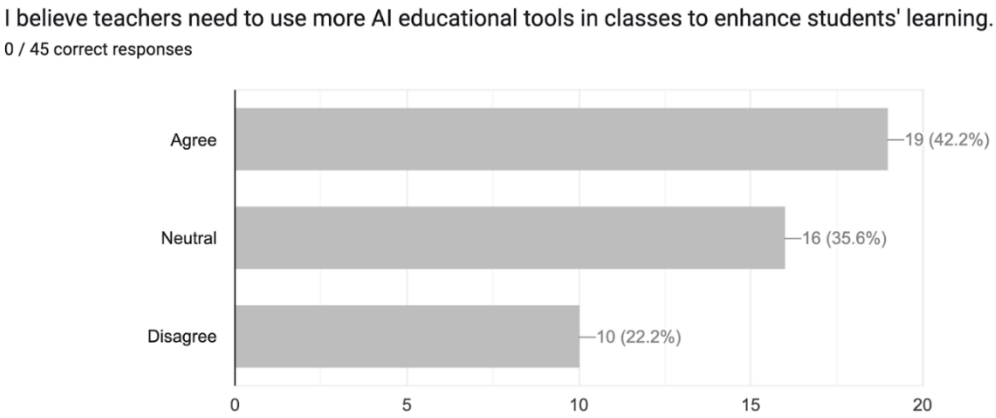
Assessed by AI



The responses to these questions have also given notable perspectives about the familiarity of being assessed by an AI tool. The data presents a mixture of responses, with "depends on the context" scoring the highest by the students. This might mean that the majority of the sample faces a complexity of decisions, but it is clear that they prefer being assessed by human beings over AI assessment tools. These responses may give researchers an insight to follow up on examining in what contexts students would feel comfortable with being assessed or taught by AI systems. These contexts may depend on the subject, the language, the type of assessment, or others.

Figure 11

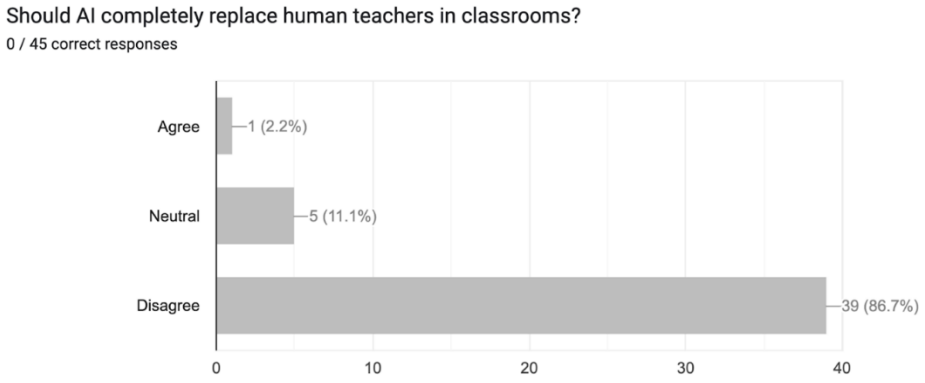
Using More AI tools



The highest number of participants agreed that teachers need to implement and foster more AI educational tools in their teaching practices. This suggests that those students have had the knowledge and the awareness of the benefits of integrating AI in education. Of the remainder, 22% of the participants disagreed which shows that those students might feel more comfortable with traditional teaching techniques more than smart ones. Neutral responses show uncertainty about implementing AI tools in education.

Figure 12

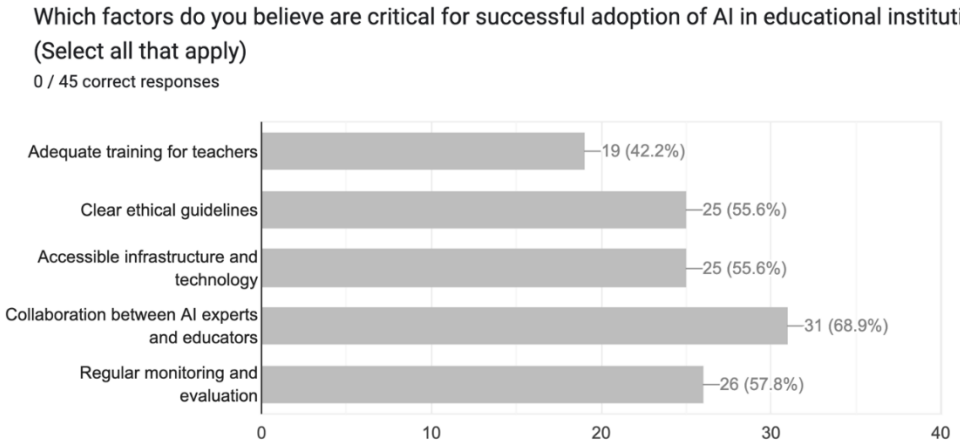
Replacing Humans



The majority of respondents expressed strong disagreement with the idea of replacing human teachers with AI systems completely. This data can be interpreted as human teacher preference. Students know that with AI systems or robots, they will not be able to have human interactions, feelings, emotions, empathy, adaptations, and others. This is also related to the literature review that discussed the challenges faced by students when using AI tools in education. The responses to this question highlight the importance of human teachers and deny any confusion about the idea of AI replacing human teachers.

Figure 13

Critical Factors



The above chart reflects different critical factors that would affect how successful adopting AI in educational institutions is. Of the respondents, 68% suggest that collaboration between AI experts and educators will determine a higher level of success when using AI tools. Collaboration may include training, explanation, following up, and assessing those tools and their efficiency. It is clear that educators cannot do it independently; they need technology experts' assistance. The second highest score is for having regular monitoring and evaluation

of those AI systems. This indicates that those students are aware of the challenges, limitations, and capabilities of those AI tools. The tools need to be regularly checked to see if they are doing the jobs properly or not, like any other machine. They might also lack the ability to adapt and update their systems independently. Two factors, which are having clear ethical guidelines for both teachers and students and having accessibility to infrastructure and technology, share the third highest score. It is generally agreed that in order for AI tools to be implemented in educational systems, they need to be regulated with special factors such as constant monitoring, evaluation, training, and guiding ethics.

4.6 Results and Analysis of Qualitative Data / Students' Survey

The following questions were answered by 45 students addressing the research questions. A critical thematic analysis of the results will be discussed thoroughly in this section although not all the results will be listed. The rest of the actual data will be presented in the appendices.

Q. 1: What are the most effective AI tools that you have used to improve your learning skills? Why?

Responses have shown a range of different AI tools that are used by students to improve their learning skills such as ChatGPT, Grammarly, QuillBot, and Notion. The benefits have included saving time and effort, improving grammar, and paraphrasing. ChatGPT was the most mentioned of the tools as students illustrated that it has provided them with detailed explanations and summarization. It helped them understand complex concepts, gather information, and improve their English skills. According to the responses, using ChatGpt is proven to enhance students' comprehension skills in English.

Q.2: How did AI tools help you in English contexts?

1. Grammar and Spelling Corrections

This is the most highlighted theme by the students. They suggested that AI tools have helped them correct their grammar and spelling mistakes which shows that they have received personalized feedback according on their work. This theme can be related to the existing literature review as AI is appreciated for providing students with personalized and constructive feedback.

3. Vocabulary Enhancement

The second theme regarding the benefits of using AI tools to improve English skills tracked the building of vocabulary words and helped in understanding the difficult vocabulary words in the lessons. It also made communication easier through the variety of vocabulary words given to the students. This means that AI tools can facilitate learning vocabulary, synonyms, and other difficult words. In addition, AI tools in this case have helped students comprehend English literature and academic English too. For example, some students clarified that AI tools helped in analyzing symbolism in literature and gave simplified answers to difficult questions.

Q. 3: In your opinion, what are the potential advantages or disadvantages of incorporating AI in the learning process?

The responses to this question can be divided into two categories: advantages and disadvantages of AI in the learning process.

1. Advantages

Students have agreed that using AI can improve their learning skills in general. AI tools prove effective in simplifying complex texts and paraphrasing difficult content that requires students comprehension. AI tools are effective in managing time and saving students' efforts.

Students are able to find the sources of information they need quickly and easily. They can receive personalized feedback to improve their writing skills and even fix the mistakes they make in grammar and spelling.

2. Disadvantages

For this question, the disadvantages mentioned for using AI outweigh the advantages. All students agreed that using AI tools can make them lazy and unable to learn basic skills. They believe that relying on AI tools will not enable them to develop skills like critical thinking and problem-solving since those tools do these tasks for them. There is another disadvantage seen by the students which is the ethical considerations of using AI tools. They believe that it is easier to cheat, copy, and paste information without citing it which they refer to as plagiarism. They also believed that using AI tools would decrease human interaction which is not preferred by the students. This highlights the importance of having a sufficient balance between using devices and interacting with humans.

4.7 Triangulation of the two Data

To enhance the validity and the reliability of the results coming from the surveys, the data needs to be analyzed and compared from different angles. Both qualitative and quantitative data from the students' and the teachers' surveys highlighted the advantages and disadvantages of using AI tools in education. Common themes have appeared such as the need to teach and learn the ethical considerations for using AI. Another theme is the ability to enhance the teaching and the learning process. Creativity and critical thinking skills should not be neglected when using AI tools. Human interaction is highly important, and teachers cannot be replaced by AI-generated tools.

Chapter 5: Conclusion

5.1 Overview

To have a clear understanding of the study, this chapter will discuss and summarize the key findings obtained from the research done in this dissertation. This chapter will reflect on the research questions and ensure that the objectives of the study have been achieved. Based on the theoretical and the empirical findings, this chapter will include recommendations that aim to guide future researchers in the field. It will also acknowledge the limitations and identify the scope for further study. Finally, it will highlight the significance of the study for the field of education.

5.2 Discussion of Key Findings

The overall analysis of the data has shown positive attitudes towards using Artificial Intelligence tools in education; however, there have been concerns and conditions mentioned regarding the need for clear guidelines, ethical considerations, and overreliance on AI tools.

The findings suggested that ChatGpt is the most effective AI tool for both teachers and students. Using AI tools in general has saved both teachers' and students' time and effort on many educational tasks. For teachers, these tools have saved them all the headache of planning, feedback, and correction, and for students, the tools were easy and accessible sources of information that even corrected their grammar and spelling mistakes. AI tools have supported students with adaptive and personalized learning experiences that enhanced their learning skills. On the other hand, there is a great concern about the possibility of decreasing the number of students practising creativity and critical thinking skills.

Comparing the perspectives of using AI in education, the results have shown that it is highly important for teachers and students to receive the needed guidance while using AI tools. Regular monitoring and collaboration between educators and AI experts is a must to reach a successful level of implementing AI tools in education.

5.3 Recommendations

Based on the theoretical and empirical data, it is recommended that a clear ethical code of conduct needs to be created, taught, and signed by students before using AI tools. Regular monitoring and assessment techniques should be implemented to effectively guarantee the appropriate usage of AI tools. Further research should be conducted to examine the contexts in which students will be more familiar with being taught or assessed by AI tools. AI experts should listen to educators in order to collaborate with each other and maximize the effectiveness of those AI practices. Teachers' recommendations can inspire AI experts to invent new AI tools that will help both teachers and students in the teaching and learning process. More research is needed to find out about the balance between using new technologies and increasing human interactions for creativity and critical thinking skills as the roles of humans cannot be neglected while addressing potential challenges. Finally, more research can be conducted to find out the impact of using AI tools on leaders and policymakers.

5.4 Implications

The implications of this study are connected to many domains. Theoretically, the findings and the data analysis have contributed to the growing body of knowledge about AI in education. Methodologically, the study highlights the importance of collecting data from different sources. There are two surveys: one for teachers and another for students. The data

was analyzed qualitatively through open-ended questions and quantitatively through closed questions. Empirically, the findings have contributed to education policymakers, experts, and institutions that plan to implement AI tools in education.

5.5 Limitations

Although the study has added value to the current body of knowledge by identifying teachers' and students' perspectives on the usage of AI tools in educational contexts, two limitations may be explained. First, the sample size, which is 30 teachers and 45 students, could have been expanded to thoroughly address the diversity in opinions about AI tools. Focus groups would have been an easier and more effective method to collect data, but the process of obtaining consent from a specific school was difficult and time-consuming, so it was more convenient for the researcher to use open-ended questions although they are more difficult to conduct and analyze.

5.6 Scope for Further Study

Further studies should be conducted to investigate the long term impact of integrating AI tools in education. Comparative studies should also be conducted to examine cultural contexts and ethical considerations about AI in education. More specific studies examining specific AI tools or platforms should be proposed to provide a comprehensive overview about this technology.

5.7 Concluding Note

In conclusion, the present study has examined the attitudes of teachers and students towards implementing AI tools in education. It also investigated the most effective AI tool, ChatGPT, that enables teachers and students to overcome present educational problems such as planning and comprehending texts. Teachers' and students' perspectives have been taken

into consideration as they were analyzed and recommended to AI experts and education stakeholders. Challenges and disadvantages such as the fear of overreliance, the lack of ethical considerations, and the lack of creativity and critical thinking skills have been discussed and suggested for further research.

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Teachers' Survey

* Indicates required question

AI in Education: An Investigation of High School Teachers' and Students' Perspectives of Effective AI Tools Used in Surmounting Challenges in TESOL Contexts

Teachers' Survey

Thank you for participating in this survey, kindly be informed that the information shared in this survey is confidential and for the sake of gaining in depth knowledge of what and how AI tools are used in educational situations and the possibility of their effective academic contribution to students who are learning English in TESOL contexts.

By taking this survey, you have given your consent to the researcher to study and analyze the shared information as a requirement for obtaining a master of education degree.

1. Demographic Information: 1. Name of school (optional): a. * 1 point

2. Your Role: * 1 point

Mark only one oval.

- English Teacher
- TESOL Specialist
- Other (please specify):

3. Years of Teaching Experience: * 1 point

Mark only one oval.

- 1-5 years
- 6-10 years
- 11-15 years
- 16+ years

4. How familiar are you with the concept of artificial intelligence (AI)? * 1 point

Mark only one oval.

- Not familiar at all
- Somewhat familiar
- Moderately familiar
- Very familiar

5. Have you personally used AI tools in your teaching practices? * 1 point

Mark only one oval.

- Yes
- No
- Not sure

6. Do you think AI educational tools can replace teachers in schools? * 1 point

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Not sure

7. Do you think students need to use and learn about AI tools and their ethics in schools? * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly disagree

8. What do you think the main role of AI educational tools for teachers should be? Tick all the matching answers. * 4 points

Check all that apply.

- ☐ Communication
- ☐ Planning / preparation
- ☐ instruction/ whole group/individuals
- ☐ Assessments or grading

9. In what ways have you used AI tools recently? Tick all the matching answers . * 1 point

Check all that apply.

- ☐ Communication
- ☐ Planning / preparation
- ☐ instruction/ whole group/individuals
- ☐ Assessments or grading
- ☐ Classrooms management

10. Tick all the AI powered educational tools that have you used recently with your students? * 1 point

Check all that apply.

- [ ] IXL
- [ ] ALEF
- [ ] Duolingo
- [ ] Century
- [ ] ChatGpt /OpenAI
- [ ] Intelligent tutoring system
- [ ] QuillBot
- [ ] others
- [ ] Other: _____

11. Identify the key challenges you face in TESOL contexts (select up to three): * 1 point

Check all that apply.

- [ ] Limited resources
- [ ] Engagement and motivation
- [ ] Diverse language proficiency levels
- [ ] Personalized learning Assessment
- [ ] others

12. I am confident that it is beneficial to my students to use AI tools independently. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

13. AI tools can give me good insight into my students' needs. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

14. AI tools can give me good insight into what my students know. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

15. AI helps students learn more effectively than they would without it. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

16. AI tools provides more educational activities for me and my students. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

17. I feel that students are safe when using AI tools. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

18. Students spend too much time using AI at the expense of other effective learning methods. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

19. I feel that there is adequate protection in place to protect students when they use AI tools. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

20. My students know and abide by the ethics of using AI in educational situations. * 1 point

Mark only one oval.

- ◯ Strongly Agree
- ◯ Agree
- ◯ Neutral
- ◯ Disagree
- ◯ Strongly Disagree
- ◯ Other: _____

21. What are the challenges that you have faced recently when using AI in teaching? *

_____

_____

_____

_____

_____

22. In your opinion, what are the most effective AI tools used to overcome current educational challenges faced by teachers ? *

23. What benefits have you observed from using AI tools in teaching?

24. What challenges or limitations have you encountered while using AI tools in TESOL contexts? *

25. What suggestions or rules would be discussed before using AI tools in or outside classes? *

26. What is an AI tool that you wish if invented to help make your job easier ? *

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Google Forms

The following are the responses by teachers and students without any editing. The answered have been analyzed thematically in the Results and Analysis Chapter.

Table 1: The Most Effective AI Tools for Teachers / Question 1

Participants	**Response**	**Keywords for Analysis**
Teacher 1	**Chat Gpt**	1
Teacher 2	Unsure	
Teacher 3	**Chat Gpt**	2
Teacher 4	**CHAT GPT**	3
Teacher 5	—	
Teacher 6	Generative AI tools	
Teacher 7	**ChatGPT**	4
Teacher 8	GIZMOS	
Teacher 9	To get adequate training	
Teacher 10	NA	
Teacher 11	**Chat gpt**	5
Teacher 12	AI tools should be used for assessment but there should be full days at school where it is devices free	
Teacher 13	N/A	

Teacher 14	**Chat GPT**	6
Teacher 15	**Chatgpt**	7
Teacher 16	Still looking for one	
Teacher 17	Lesson plan generator	
Teacher 18	Education CoPilot	
Teacher 19	**Chat gpt**	8
Teacher 20	diffit	
Teacher 21	**Chatgpt**	9
Teacher 22	No clue	
Teacher 23	No idea.	
Teacher 24	**Chat gbt**	10
Teacher 25	**Chat gpt**	11
Teacher 26	**ChatGPT**	12
Teacher 27	IXL	
Teacher 28	Any interactive learning game	
Teacher 29	**ChatGPT** and other lesson planning tools	13
Teacher 30	Not sure	

Table 2:Benefits of AI in Teaching / Question 2

Participants	Responses	Keywordsfor Analysis
1	It can give me the suitable Answers	**Resourcefulness**
2	Saving time. Getting to know what questions are good for assessment.	**Time saving** **Effective teaching strategies**
3	Faster, More focused and oriented.	**Time saving** **Effective Teaching Strategies**
4	Immediate response/ better levels targeting activities	**Time saving**
5	Variety of activities… helps in individualized planning	**Resourcefulness**
6	Reduce preparation time,give individualized activities, and activities, correct and grade assessments	**Time saving**
7	Lesson planning	**Effective Teaching**
8		
9	It saves time and gives teachers ideas on how to create lessons	**Time saving**
10	It's easier to plan the lessons	**Resourceful** **Effort Saving**
11	It gives ideas	**Resourceful**

12	better language	**Resourceful**
13	It is time saving and provides a variety of activities.	**Time saving**
14	Good examples and explanations	**Individualized ideas**
15	Generating ideas	**Individualized ideas** **Resourceful**
16	Quick preparation	**Time Saving**
17	It makes work easier and faster	**Time saving**
18		
19	It supports teacher s work in different ways	**Teaching Efficiency**
20	differentiation	**Individualized**
21	Varied activities	**Resourcefulness**
22	Time management	**Time saving**
23		
24	AI can autograde assignments, thereby reducing the time teachers spend evaluating work. Virtual tutors can handle common student questions and concerns, allowing educators to focus on complex concepts and critical thinking.	**Time saving**
25	Creative solutions to problems	**Resourcefulness**

26	A variety of sources of ideas	**Resourcefulness**
27	Students learn new things	**Individualized Opportunities**
28	Time management	**Time saving**
29	Being provided with ideas, exercises, lesson plans… helping weak students kick off their tasks	**Individualized Learning**
30	It could be used to facilitate students' understanding by summarizing, giving examples,...	**Resourcefulness**

Table 3: Challenges / Question 3

Participants	**Responses**	**Key Analysis**
1	_	
2	Students do not understand what the answer is	**Students' Understanding**
3	Relevance	
4	Not all students are ready to use it in its full potential	**Readiness**
5	—	
6	None	
7	-	
8	Distraction	**Engagement**

9	It's often not 100% ready to use and requires editing	**Readiness**
10	NA	
11	NA	
12	Students are aware of some knowledge but they don't dig deep and it is not always safe to search for information depending on different resources	**Students' understanding** **Safety**
13	Students are being dependent on these tools.	
14	Nothing	
15	Answers are very general	**Students' understanding**
16	Adaptation with information	**Readiness**
17	The ability to give you the right translation	**Accuracy**
18	The limitations of AI include unreliable results, difficulty integrating AI tools, lack of data quality and quantity, as well as human creativity and depth,	**Accuracy and Reliability**
19	It is not accurate when using it for grammar or translation	**Accuracy**
20	nothing	
21	Nothing	
22	No challenges	
23		

24	AI learning systems could become even more powerful and valuable tools for learning languages.	**Readiness**
25	Non	
26	Provide visuals, PDF, worksheets	**Readiness**
27	Sts copy and paste all types of writings, they even find ready answers for reading comp. passages.	**Ethics**
28	students motivation	**Engagement**
29	None… plenty of resources	**Readiness**
30	Students want to provide excellent English writing so they tend to cheat/copy from ChatGPT.	**Ethics**

Table 4: Suggestions/ Question 4

Participants	**What suggestions or rules would be discussed before using AI tools in education?**	Key Analysis
Teacher 1		
Teacher 2	That we have to not trust everything	**Critical Thinking**
Teacher 3	Objectives and criteria	**Objectives and criteria**
Teacher 4	safety is a major concern	**Safety**
Teacher 5	Keep AI as an asset and don't let it replace your brain.	**Critical thinking**

Teacher 6	Ethics considerations	**Ethics**
Teacher 7	I don’t have an idea	
Teacher 8	More controlled	**Objectives and criteria**
Teacher 9	To use it as a search engine but not a be all end all tool it must be used as a starting point not the final destination for planning and research. Students can use it to gather data and generate ideas but they must be able to also create on their own.	**Objectives and criteria** **Critical Thinking**
Teacher 10	NA	
Teacher 11	NA	
Teacher 12	Having days that are devices free	**Moderation and balance**
Teacher 13	Students need to be informed that these tools assist them in learning but they shouldnt fully rely on them.	**Moderation and balance** **Objectives and criteria**
Teacher 14	Correction	
Teacher 15	This is not clear for me	
Teacher 16	The normal traditional way	
Teacher 17	Rules about using AI in the right way. To search for information rather than doing your work	**Objectives and criteria**
Teacher 18	If AI is permitted to be used, you must indicate what part of the assignment was written	**Plagiarism /transperncey**

	by AI and what was written by you. No more than 25% of an assignment should be created with	
Teacher 19	Using AI ethically	**Ethics**
Teacher 20	compliance	
Teacher 21	Monitoring system	**safety**
Teacher 22	How to use them without plagiarism	**Plagiarism /transparency**
Teacher 23	No idea.	
Teacher 24	.	
Teacher 25	Moderate use of AI	**Moderation**
Teacher 26	Add more variety	
Teacher 27	Sts should be taught how to use AI effectively when preparing for a lesson, studying a lesson or doing an assignment	**Objectives**
Teacher 28	Cyber safety	**Safety**
Teacher 29	Ethics/originality/consequences/effective guidance tips or instructions	**Ethics**
Teacher 30	Using it only with the permission of the teacher on non-graded classwork	**Transparency / objectives**

Table 5:Wishes

Participants	**Responses**	**Analysis Key words**
1		
2	An AI tool that can write differentiated lesson plans based on the results of assessments. If it could use articles that can be discussed.	**Lesson planning**
3	?	
4	NA	
5	—	
6	Nothing more than what already there	
7	AI Physics lab	
8	the one that will keep students in same window and doesn't allow navigation outside the AI	
9	To create detailed lesson plans based on standards and templates that can be uploaded into the platform and filled using AI	**Lesson planning**
10	To read your mind and generate the ideas.	**Lesson planning**
11	Chatgpt	
12	None	
13	A tool that helps in lesson preparation	**Lesson planning**

14	Correction	**Grading**
15	AI hologram	
16	Nothing is on my mind.Wish you all the best	
17	One that could mark students' answers, grade them, and give immediate feedback	**Assessments and Evaluation**
18	Data Analysis tool	**Assessment and Evaluation**
19	AI tools specializing in education	**Specialized**
20	PowerPointthe teacher-ppt presentation maker	**Presentation maker**
21	PowerPoint and lesson plan preparation	**Lesson planning**
22	No clue	
23	Teaching is a human job based on teacher-learner relationship/contact. I don't think AI can make teachers' jobs easier.	
24	GPT	
25	Planning lessons	**Lesson-planning**
26	Having an AI teacher Assistant that would do all paperwork and marking for me.	**Assessment, Evaluation and**
27	prepareAI platforms that would help teachers plan and preparing differentiated activities	**Lesson planning**

Teacher 28	All paperwork need to be replaced	**Planning and preparation**
Teacher 29	Grading essays	**Evaluation**
Teacher 30	AI that corrects written work	**Grading**

Students' Survey

AI in Education: An Investigation of High School Teachers' and Students' Perspectives of Effective AI Tools Used in Surmounting Challenges in TESOL Contexts in the UAE

* Indicates required question

Survey

Dear Students,

I am a Master of Education student at the British University in Dubai, conducting a survey to gather insights and perspectives on the integration of Artificial Intelligence (AI) in education.

Your participation in this survey will provide valuable information that will help in understanding how AI technologies can enhance learning experiences in the classroom.

Before you proceed with the survey, we kindly ask for your **consent.** Please note that participation in this survey is entirely voluntary, and you are free to stop at any time.

Additionally, by continuing to complete the survey, you are confirming that you are above the age of 15 and consent to participate voluntarily. Your participation is entirely anonymous, and your responses will be kept confidential.

Thank you for your cooperation and valuable input.

Sincerely,

M.K

1. "By selecting 'Agree' below, I confirm that I am above the age of 15 and I HERE provide my consent to the researcher to use my information for research study purposes." * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Disagree

2. I believe that AI will have an impact on my career, so I need to use it and study about it in school. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

3. I support the development of AI in the educational field. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

4. I oppose the development of AI in the educational field. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

5. I believe that high school students need to learn the basics and the ethics of AI in schools. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

6. Would you feel comfortable being assessed by an AI system? * 1 point

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Depends on the context

7. Would you feel comfortable being taught by an AI system? * 1 point

Mark only one oval.

- ◯ Yes
- ◯ No
- ◯ Depends on the context

8. I understand the ethical implications of using AI in school work. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

9. I believe teachers need to use more AI educational tools in classes to enhance students' learning. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

10. AI tools improved my English skills. * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

11. Should AI completely replace human teachers in classrooms? * 1 point

Mark only one oval.

- ◯ Agree
- ◯ Neutral
- ◯ Disagree

12. Which factors do you believe are critical for successful adoption of AI in educational institutions? (Select all that apply) Regular monitoring and evaluation * 1 point

Check all that apply.

- ☐ Adequate training for teachers
- ☐ Clear ethical guidelines
- ☐ Accessible infrastructure and technology
- ☐ Collaboration between AI experts and educators
- ☐ Regular monitoring and evaluation

13. a. What are the most effective AI tools that you have used to improve your learning skills? Why ? *

14. *

b. How did AI tools help you in English contexts?

15. c. In your opinion, what are the potential advantages or disadvantages of incorporating AI in the learning process? *

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Google Forms

Table 6: English Context

Students	Responses	Thematic Analysis
1	corrected my mistakes, evaluated my writing, etc.	**Grammar and spelling corrections**
2	correct errors in grammar, punctuation, and spelling.	**Grammar and spelling corrections**
3	enhanced my grammar	**Grammar and spelling corrections**
4	Improve my vocabulary dictionary	**Vocabulary Enhancement**
5	It improved my vocabulary, grammar, and use of punctuation.	**Grammar and spelling corrections**
6	It help to correct your mistakes and help you to take ideas for your project	**Grammar and spelling corrections**
7	Have not used any AI tools.	
8	grammar and spelling mistakes	**Grammar and spelling corrections**
8	While taking Macbeth, a renowned literary piece written by William Shakespeare, I have referred to AI to help me understand the symbolism or character's actions better.	**Vocabulary Enhancement**
10	It helped me widen my vocabulary and write better.	**Vocabulary Enhancement**
11	question and answer simplification	
12	It helps me plan my ideas correctly and write them in the most efficient and effective way	**Vocabulary Enhancement**

13	.	
14	they make research easier	
15	Development in my writings	**Vocabulary Enhancement**
16	It helped correct errors my grammar, spelling, and punctuation	**Grammar and spelling corrections**
17	Know definitions of unknown words	**Vocabulary Enhancement**
18	I learned new words, and my writing skills developed.	**Vocabulary Enhancement**
19	paraphrasing ai	**Vocabulary Enhancement**
20	better english skills	
21	It helped with my spelling and grammar, showing me better alternatives to words and broadening the range of words I use to express myself	**Grammar and spelling corrections**
22	It has helped me greatly when it comes to the structure of text, especially when writing college personal statements	**Vocabulary Enhancement**
23	Support communications improvements	**Vocabulary Enhancement**
24	It helped me by fixing my grammar mistakes or figuring out figuring a way to start a text for instance; an essay.	**Grammar and spelling corrections**
25	I use Ai to correct my grammar when writing.	**Grammar and spelling corrections**

26	YouTube videos and channels	
27	It helps fix my grammar for essays	**Grammar and spelling corrections**
28	It gave me ideas of how to write baba certain objective and I just used the idea in my work	**Vocabulary Enhancement**
29	I use it when I didn't understand from the lecture	**Vocabulary Enhancement**
30	Helps me summarize an english essay i needed to read	
31	It helped by formatting the context	
32	Helped me used better wordings and vocabulary and to sound more formal and sophisticated when writing to an academic institution	**Vocabulary Enhancement**
33	Information	
34	I do not believe any AI tool has helped me with my English skills; however, it has helped with correcting grammar in assignments, etc.	**Grammar and spelling corrections**
35	It wrote essays	
36	Quillbot	
37	ChatGPTChat gpt has helped me learn how to use a unique vocabulary to enhance my writing	**Vocabulary Enhancement**
38	Z	
39	.	

40	It rephrases and corrects my grammar	**Grammar and spelling corrections**
41	by fixing grammar mistakes and providing a better structure for the sentence	**Grammar and spelling corrections**
42	n/a	
43	Using it to fix my structure and grammar in writing.	**Grammar and spelling corrections**
44	Helped in grammar and structure of essays and the optimization of new vocabulary.	**Grammar and spelling corrections**
45	I mean, I use it to check if I make mistakes sometimes because I like to depend on myself	**Grammar and spelling corrections**

Table 7: Advantages and Disadvantages

Students	**Responses**	**Thematic Analysis**
1	It can be helpful in some cases. however it is not always reliable	**Disadvantage/ reliability**
2	Advantage: It makes learning easier. Disadvantage: students totally depend on AI	**Disadvantage/ reliability**
3	It will distance children from human learning	**Disadvantage**
4	It could take over jobs	**Disadvantage**
5	I think AI can be helpful and useful to a certain extent. otherwise it could even be harmful.	**Disadvantage**

6	Disadvantage: AI made some people be irresponsible and always rely on AI	**Disadvantage / reliability / irresponsibility**
7	I do believe that AI does not have any advantages, & should be stopped	**No Advantages**
8	we will be depending on the ai	**Disadvantages / reliability**
9	Advantages: simplifying certain ideas, analyzing complex texts, and explaining a concept briefly. Disadvantages: the incorrect and immoral usage of AI, which may include: cheating, plagiarism, misleading, etc.	**Disadvantages/ inaccuracy/ethics/ misleading information** **Advantages / simplifying ideas, complex texts, and complex texts/ analysis**
10	advantages - work will be done easier and quicker, students can learn a lot from AI disadvantages - unethical uses, misinformation from AI	**Disadvantages / ethics / misinformation** **Advantages / easy and quick results**
11	Cheating	**Disadvantages**
12	1 disadvantage is that students will have better access to cheating 2 disadvantage is that they will not learn	**Disadvantages**
13	._____	_____
14	Easier access to information is definitely beneficial, although people still need to learn to do stuff on their own.	**Advantages / easier** **Disadvantages / reliability**

15	It affected my eyesight	**Disadvantage**
16	In my opinion, an advantage of incorporating AI into the learning process is that, as students, we'll get to know more about AI and the ways we can use it. And I also think it will make education more fun and understandable for students who like writing and using their iPads more than paper.	**Advantages / easier, more accessible information / fun**
17	Advantage is helping the environment; the disadvantage is students use it in a wrong way like playing games which leads them for lower marks	**Advantages / Environment**
18	Advantages: we will learn more skills. Disadvantages: we will depend on AI for everything.	**Disadvantages / reliability** **Advantages/ more learning**
19	rawr	_____
20	It helps improve our knowledge and understanding but makes us dependent.	**Advantages /Knowledge** **Disadvantages / reliability**
21	An advantage would that it would help build more specialized learning for each individual student based on their habits, strengths and weaknesses A disadvantage would be the overreliance on technology, increasing screen time and lessening the social aspects of learning	**Advantages /Knowledge** **Disadvantages / reliability**
22	Advantages: gives extra assistance to teachers and could explain things to students in an easier way. Disadvantages: (currently) can be very easily used unethically	**Advantages /Knowledge** **Disadvantages / reliability/ Ethics**
23	The potential to improve and minimize disadvantage	**Advantages /Knowledge**

24	One of the advantages is that you can fix grammar mistakes and one disadvantage is that you might feel like its harder to understand.	**Advantages /Knowledge/ fixing grammar** **Disadvantages / reliability**
25	AI could be used in many wrong ways outside of school and education many people could use it in a wrong way which could increase cyber bullying and many more	**Advantages /Knowledge** **Disadvantages / reliability/ cyber bullying**
26	Idk	
27	1- disadvantage: if they replace teachers with ai tools there won't be the human like connections and it will not be comfortable 2-advantage ai can help you complete tasks quicker	**Advantages /time management /** **Disadvantages / reliability/ no human interaction**
28	Advantages are that it will help a lot easier and disadvantages are maybe you need to understand something specific a teacher will only know how to explain	**Advantages / comprehension / communication**
29	.	
30	Ai can be used right in education but most students use it to complete their assignments and learn nothing making future generations rely on ai instead of their minds	**Advantages / comprehension / communication** **Disadvantages / reliability/**
31	It will enhance the learning skills and the disadvantage will be that it will decrease educator presence	**Disadvantages / reliability/**
32	Not sure what the future of AI may look like	_____

33	Easier access	**Advantages**
34	Relying heavily on fast processes. Using AI fully in classrooms will enable the students' minds to expect fast results with little to no effort which can be a very negative habit as they grow older.	**Advantages / comprehension / time and effort** **Disadvantages / reliability/**
35	AI is dangerous	
36	._____	_____
37	Advantages is that it will have way less effort in studying and disadvantage is that it may replace a lot of jobs	**Advantages / Time and effort** **Disadvantages /Replacing humans**
38	yuh	
39	._____	_____
40	Advantages are many to list, A Disadvantage is that students/Employees would rely completely on AI	**Disadvantages / reliability/**
41	Advantages: makes learning easier Disadvantages: it would be too easy, students will not learn, they will just use it to find answers. They don't gain any knowledge	**Disadvantages / reliability/**
42	AI may be helpful to guide people in the basics of each field, but it cannot replace actual human interaction and understanding- especially when teaching and learning a subject.	**Disadvantages / reliability/**
43	We could benefit by using it to fix writing. However, we could depend too much on it and our grammar could deteriorate.	**Disadvantages / reliability/**

44	Advantages: guiding learners to improve their skills by giving constructive criticism. Disadvantages: unethical usage in academic settings such as plagiarism.	**Disadvantages / ethics/** **Advantages / improving learning / feedback**
45	independent; disadvantages independent;Disadvantages: Students will lose so many skills that they have built up over the years. Students won't be independent; they will depend on AI since it's easier for them but doing this or allowing schools to let students use AI isn't a great idea since they won't be as smart or independent as students who are independent and study from books I literally miss using books now we rarely use it we use our devices more which includes AI I think not letting students use AI is for the better cause then you would be sure that this generation is going to be able to take care of our earth.	**Disadvantages / reliability/human based skills**