Your Way AI Way: Let's Meet Half-Way: Paradigm Shift in TEFL

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Abstract

With the use of modern technological advancements nowadays, a drastic shift can be clearly noticeable in Teaching English as a Foreign Language (TEFL) approaches. This change can be attributed to various factors related to the way learners adopt different strategies to attain learning and the way tutors adopt different approaches to develop the teaching/learning processes. This research study investigates the differences between lesson plans developed by Arab Open University (AOU) student-teachers in the light of their own preferred teaching styles and the ones produced by Artificial Intelligence (AI). The study investigates the impact of using Artificial Intelligence (AI) on targeted student-teachers' performance in enhancing the developed lesson plans. The data has been collected from reviews of literature, the teaching styles inventory, and the in-class presentations of AOU student-teachers' lesson plans. The analysis of the lesson plans developed by AOU student-teachers, and the ones created by AI app (ChatGPT) has resulted in concluding that nearly all the artificially created lesson plans lack human factor and interactive practices that meet the learners' natural characteristic as being sociable, active, and curious. The researchers are suggesting a midway strategy that aims to aid AOU student-teachers in developing effective lesson plans by integrating the learned TEFL teaching methods with AI tools such as ChatGPT.

Keywords: TEFL Methods, Student-Teachers, Artificial Intelligence, Teaching Styles

1. Introduction

The topic of Artificial Intelligence (AI) is relatively new to teaching and learning processes. Artificial Intelligence (AI) is one of the application fields of computer science that works on creating systems impersonating tasks that typically require human intelligence (Smith, 2021). It has recently been considered as one of the most influential pedagogical factors affecting teachers' performance and students' progress. At present, many AI-based applications have been developed for the sake of enhancing teaching and learning, especially language learning in EFL classrooms (Sumakul, Hamied & Sukyadi, 2022). The current research study is incorporating AI tools to enhance English language teaching practices creating a community of practice that suits the technological intelligence of the students by adapting personalised learning and intelligent tutoring systems.

Teaching styles is the second variable of the current research study which would affect the room given to AI tools in the teaching process based on teachers' preferred teaching style. Nowadays, traditional teaching styles have been evolved with the commencement of differentiated instruction which led teachers to adjust their teaching styles based on their students' learning needs (Esmaeili, Mohamadrezai, & Mohamadrezai, 2015). To illustrate, teacher-centred teaching method is adopting an authoritative teaching style. It emphasises the immediate articulation of output expectations for students, setting clear guidelines from the outset. This method fosters discipline and attentive listening among students, maintaining a structured environment that limits deviation from prescribed instructions. However, it also limits the scope for students to explore beyond the provided guidelines, offering very limited space for independent learning and exploration. Encouragement for notetaking and questioning primarily occurs towards the conclusion, promoting a more centralized flow of information (Esmaeili, Mohamadrezai, & Mohamadrezai, 2015).

In contrast, learner-centred teaching methods encourage students to engage in both formal and informal pairs or groups, fostering collaborative learning experiences. This collaborative approach aligns with the idea that students should actively participate in their own learning. While learner-focused education promotes flexibility with fewer rigid guidelines, there is a potential drawback as it may result in spending class time on activities that are less productive (Lee and Hannafin, 2016). Therefore, teachers in this model consistently monitor and evaluate students' work to ensure comprehension, progress, and no deviation from the tasks.

Another student-led teaching method is Montessori education. This teaching model involves providing students with content and materials, allowing them to pursue their interests and contribute their own knowledge to the classroom while seeking guidance as needed (Cossentino, 2005). Teachers maintain order, act as guides, support students' natural curiosity and foster a resourceful authentic learning environment.

Finally, project-based learning (PBL) is a collaborative teaching method that emphasizes group work, problem-solving, and real-world applications. Mohedo and Bújez (2014) have discussed the need for changing the university training experience for future teachers by promoting interdisciplinary cross-curricular project work. Teachers in this teaching models are acting as consultants advising and

directing students to implement discovery learning to develop their communicative and reflective skills.

The current research study is examining the effect of incorporating AI tools (ChatGPT) to improve AOU student-teachers' developed lesson plans for young learners by integrating these student-teachers' preferred teaching styles with AI tools to enhance English language teaching practices.

2. Review of Literature

AI has been a significant player in addressing challenges posed by the COVID-19 pandemic. During 2020, in response to the cancellation of exams due to the pandemic, the Office of Qualifications and Examinations Regulation (Ofqual), the governing body overseeing qualifications, exams, and tests in England, introduced a standardisation algorithm for A level and GCSE qualifications. The primary objective of this algorithm was to mitigate grade inflation and moderate teacher-predicted grades by incorporating teachers' assessments with the historical performance of schools. Despite being initially regarded as a timely solution, the algorithmically generated grades encountered public backlash, resulting in the withdrawal of the proposal (Denes, 2023).

An innovative study has been conducted to explore the potential utilization of various AI models as assessment tools in an independent secondary school in England. The investigation sought answers to the following questions: How precise are contemporary AI models in forecasting GCSE exam grades? What variations in model accuracy exist across subjects, and can these variances be attributed to qualitative disparities in teachers' grading methodologies?

The findings suggest that, although the models exhibit acceptable mean absolute errors, there can be instances of individual mispredictions exceeding desirable limits. Differences across subjects revealed that grading subjectivity holds less significance in science, technology, engineering, and maths (STEM) subjects, potentially explaining the higher frequency of inaccurate predictions by objective models in non-STEM grades. In summary, the numerical outcomes indicate that using AI for grade prediction is a compelling and innovative application, but further research is required to minimize outliers.

Thomas et al. (2023) have conducted another comprehensive exploration of artificial intelligence (AI) applications in education, analysing 92 articles published in ERIC, ProQuest, Scopus, and WOS between 2012 and 2021. Utilizing matrix coding and content analysis, their study investigated AI integration in key educational domains: learning, teaching, assessment, and administration. The authors identified 13 roles of AI technologies in education, seven learning outcomes, and 10 major challenges.

In learning, AI's roles encompass assigning tasks based on individual competence, facilitating human-machine conversations, analysing student work for feedback, and enhancing adaptability and interactivity in digital environments. For teaching, AI aims to provide adaptive teaching strategies, improve teachers' abilities, and support professional development. In assessment, AI primarily focuses on automatic marking and predicting students' performance. As for the administration roles, they involve improving management platforms, offering personalized services, and supporting evidence-based decision-making.

Despite advancements, challenges identified by Thomas et al. (2023) include a lack of relevant learning resources, issues in selecting appropriate data for AI models, and a gap between AI technologies and effective teaching use. Challenges also include educational inequity, teacher knowledge gaps, negative attitudes, and insufficient research on socio-emotional aspects.

Several studies exemplify the application of AI in personalized learning. For instance, Hirankerd and Kittisunthonphisarn (2020) developed an AI-integrated management system using augmented, virtual, and mixed reality technologies. However, a common challenge is the lack of supportive learning resources, hindering effective matching with individual competences (Listman, 2019).

AI-driven chatbots and books, incorporating human expertise, have been utilized for language learning, fostering communication abilities through ongoing dialogue. However, challenges persist, including limited findings on the impact of AI conversations on the student experience Berber-Sardinha (2023). Intelligent tutoring systems recommend teaching content and tasks based on teaching needs. Despite promising applications, challenges include the lack of practical testing and criteria for evaluating system effectiveness. The combination of computer-assisted instruction and AI technologies has streamlined the classroom. However, teachers often lack understanding of these technologies, leading to diminished control and self-efficacy concerns.

AI has been employed not only to support teaching but also in teacher professional development. The objectivity of AI evaluators aids in constructive feedback, yet challenges include a limited number of pre-designed suggestions, particularly unsuitable for experienced teachers. Although AI supports teaching and professional development (Lampos et al., 2021), the challenges include a limited number of pre-designed suggestions, unsuitable for experienced teachers.

Automated assessment using AI has proven effective, providing accurate and fast grading (Alghamdi et al., 2020; Kumar and Boulanger, 2020). Challenges include the consistency of grading systems reliability, limited application domains, and insufficient criteria for validity assessment in diverse contexts.

Recently, AI-based digital writing assistants have received increasing attention among teachers since they can reduce errors and enable more efficient writing with greater accuracy using ChatGPT, Writer, Jasper, WriteSonic, QuillBot, Grammarly, Plot Generator and Elsa. (Chiu, 2023; Khabib, 2022). These apps provide authentic learning situations, self-regulation modes and AI-based tools that could aid in improving students' engagement and interest in writing tasks (Persson & Nouri, 2018). AI-based adaptive learning tools analyse student data to identify their strengths and weaknesses, tailoring content to individual needs. Anderson et al. (2018) found that personalized

learning significantly improves student engagement and outcomes. VanLehn (2018) conducted a comprehensive study, revealing that students using Intelligent Tutoring Systems (ITS) outperformed those in traditional classrooms.

Quillbot is an AI tool that helps students in improving their writing skills by providing quick assistance and correction. It employs Natural Language Processing (NLP) algorithms to analyze any written text. Fitria (2021) states that Quillbot can identify spelling and grammar errors and recommend corrections. A recent term called AI adaptive learning refers to the use of AI to personalize the learning experience for each individual student.

In a recent research investigation, certain TEFL instructors incorporate the use of 'Plot Generator', a web application that instantly generates various types of plots based on user-provided prompts, within their writing classes. Subsequently, the students engage in a focus group discussion and/or produce a reflection essay to share their learning experiences. Another study used 'Elsa', a mobile application designed to assist users in enhancing their pronunciation, in pronunciation classes (Heldt, 2019).

2.1 Benefits of AI

According to previous literature, findings have shown that AI has some benefits in education. Adaptive learning systems driven by artificial intelligence (AI algorithms) examine student data to recognize individual strengths and weaknesses, customizing content to meet specific needs. AI algorithms can analyse vast amounts of data, including a student's past performance, interests, and goals, to generate personalized recommendations for educational resources, books, articles, videos, and other learning materials. Research conducted by Anderson et al. (2018) demonstrated that personalized learning has a substantial positive impact on student engagement and outcomes. AI contributes to increased learner engagement and motivation by offering interactive and immersive experiences, adaptive content, gamification, and immediate feedback.

Additionally, AI-powered virtual assistants and chatbots deliver real-time personalized support. A good example is 'StoichTutor' which is an online intelligent tutor designed to assist high school students in mastering chemistry, particularly the subfield of stoichiometry. Its utilization has facilitated the exploration of diverse learning science principles and strategies, including worked examples and considerations of politeness (Mclaren, Deleeuw, and Mayer, 2011). In the healthcare sector, adaptive AI is employed to offer more individualized care to patients. For instance, adaptive AI algorithms have the capability to analyse real-time patient data, including vital signs, laboratory results, and medical history. This analysis enables predictions regarding the likelihood of patients developing specific diseases or conditions (Krishnan, 2023).

Artificial intelligence has brought innovative approaches to capturing student interest. Utilizing AI algorithms, virtual reality (VR) and gamified learning environments are particularly effective in engaging learners. Research by Chou et al. (2019) illustrated that gamification, guided by AI, resulted in increased levels of engagement and enhanced knowledge retention. Intelligent Tutoring Systems (ITS) utilize artificial intelligence to offer immediate feedback and support to students. A thorough investigation conducted by VanLehn (2018) indicated that students utilizing ITS achieved better results compared to those in conventional classrooms. ITS has the capability to recognize misconceptions and adjust instructional approaches accordingly.

2.2 Concerns of AI

Privacy concerns arise with AI systems that collect and process student data. For instance, access to AI-powered educational tools is not uniform among students which raises inequity issues. Additionally, adequate training for educators is essential to ensure effective use of AI in the classroom.

In his work, Dede (2020) emphasizes the significance of protecting student data and promoting responsible use of AI in education. Achieving a harmonious balance between fostering innovation and safeguarding privacy proves to be a challenging task. The potential for worsening inequalities exists when AI-driven educational tools are not accessible to all students. Warschauer (2021) underscores the necessity of providing fair access to AI-powered resources and emphasizes the role of policymakers in addressing and narrowing the digital divide.

Maximizing the advantages of AI in teaching relies significantly on educators. The significance of teacher training initiatives focused on teaching AI integration skills to educators has been stresses since the emerging of automated data-driven cognitive learning model (Koedinger and Corbett, 2006; Liu and Koedinger, 2017). Teachers who are well-trained in AI can effectively utilize it to enrich classroom experiences.

Interestingly, the future of education is intricately tied to artificial intelligence. According to UNESCO (2022), the vision involves AI-powered classrooms becoming commonplace, facilitating adaptive learning environments tailored to the diverse needs of students. The expectation is an increase in virtual teachers and the widespread availability of lifelong learning platforms (Huang, Saleh and Liu, 2021).

In Mohamed's (2024) research, he explored how ten English as a Foreign Language (EFL) faculty members at Northern Border University view ChatGPT's effectiveness in aiding their students' English language learning. The researcher interviewed them collecting different opinions among faculty members where some acknowledged ChatGPT's speed and accuracy in answering questions, while others raised concerns about its impact on critical thinking and potential reinforcement of biases or misinformation. Overall, faculty members saw ChatGPT as a valuable complement to traditional teaching methods, suggesting further research to assess its efficacy. The study underscores ChatGPT's potential to enhance EFL students' language skills. Similarly, the current study has investigated ChatGPT's potentials to enhance student-teachers' TEFL skills in developing lesson plans.

2.3 Teaching Styles

Teachers' choice of AI tools is believed to be connected to their preferred teaching styles. In a teacher-centred teaching method, the initial communication of expectations often occurs explicitly, where teachers outline precisely what students should achieve and how they should proceed. For instance, in a lecture-based setting, the teacher might present a syllabus detailing the course objectives and assignment requirements at the beginning of the term. Thus, this teacher would tend to use intelligent tutoring systems that stipulates the needed procedures and measure to accomplish the assignment.

This method tends to promote discipline and attentive listening among students. When teachers establish clear guidelines and expectations, students are more likely to follow instructions and maintain focus during class time (Esmaeili, Mohamadrezai, & Mohamadrezai, 2015). For instance, when a teacher instructs students to remain silent during a presentation, it cultivates an environment of attentive listening. However, the structured nature of teacher-centred method can limit students' opportunities for exploration beyond the provided guidelines. Students may have less flexibility to investigate topics of personal interest or pursue alternative methods of learning in a highly prescriptive curriculum.

In this authoritative teaching model, note-taking, and opportunities for questioning often occur towards the conclusion of the lesson or session (Esmaeili, Mohamadrezai, & Mohamadrezai, 2015). Hence, the teacher might reserve the last portion of a class for students to ask questions or summarize key points, providing a more centralized flow of information. Despite this structure, effective teacher-centred method acknowledges and caters to students' individual differences when teachers adapt their teaching methods or provide additional support to accommodate diverse learning styles or varying levels of prior knowledge among students.

In a learners-centred settings, the students are empowered by allowing them to have a say in what, when, and how they learn. Moreover, this teaching style encourages students to develop problem-solving strategies, ask questions, and apply their knowledge through simulations. Consequently, educators often utilize various teaching tools, such as digital presentations, images, films, and virtual experiments, to cater to diverse learning styles making lessons more applicable and engaging for a broader range of students.

In this teaching model, teachers act as facilitators emphasizing the active involvement of students in their learning journey and providing them with autonomy and opportunities for critical thinking and application of knowledge (Reeve, 2006). In learner-centred teaching method, collaboration is a cornerstone. Students engage in both formal and informal group settings, fostering collaborative learning experiences. For instance, in formal settings, group projects or discussions enable students to share ideas and collectively solve problems. Informally, peer-to-peer interactions during class activities or study sessions promote shared learning experiences, encouraging collaborative exploration of concepts and materials.

This collaborative approach aligns with the fundamental notion that students should actively participate in shaping their learning experiences. Educators empower students to take ownership of their educational journey by involving them in decision-making processes of their learning objectives or methodologies (Lee and Hannafin, 2016). For instance, students might contribute ideas for class topics, suggest project themes, or choose from various learning resources to suit their preferences and learning styles.

Within this framework, teachers maintain a consistent role in monitoring and evaluating student work to ensure comprehension and progress. By providing constructive feedback and guidance, educators facilitate the learning process and support students in achieving their learning goals. However, the flexibility inherent in learner-centred teaching method can sometimes lead to spending class time on activities that are less productive, requiring careful balancing to maximize intended learning outcomes.

A similar teaching model is student-led (Montessori) teaching method where the teacher acts as a guide. The emphasis on guiding students toward self-motivation fosters their self-sufficiency and independence. Hence, students could experiment with when and how to seek assistance, promoting a deeper understanding of their learning process. Montessori education often avoids formal direction, offering liberation to some students while presenting challenges to others (Cossentino, 2005). In this regard, inquiry-based learning is encouraged, promoting curiosity and exploration as foundational elements of the educational experience using varied AI educational tools to enhance this learning experience. Holistic education is also central to this method, considering the development of the mind, body, and spirit of students within the lesson.

Accordingly, Montessori education emphasizes a student-led approach that nurtures independence, self-directed learning, and holistic development. Summers (2022) states that the principles align with the Montessori method are considered core values which aim to create an environment where students can blossom intellectually, socially, and emotionally through self-directed exploration and guidance from trained educators.

Project-based teaching method is resting on collaboration. Teachers in this model group students to tackle problems, investigate complicated subjects, and analyse real-world case studies. This method optimizes time by organizing students into groups, fostering an environment where peer-to-peer learning thrives. Students not only learn from their teachers but also gain valuable insights from their peers, encouraging a diverse range of perspectives. This method primes students to future endeavours, recognizing the crucial role of teamwork in higher education and professional settings via emphasizing early engagement with diverse groups. Skilful teachers dynamically adjust lessons, shaping activities that sustain students' interest and involvement throughout the learning process across-curricula (Mohedo and Bújez, 2014). Acting as consultants, they steer discussions, fostering an atmosphere of collaborative learning, where students actively participate and learn from one another.

There are several phases to project-based teaching methods. Grouping students is essential in this teaching model not only to adopt communicative approach which develops students' collaborative work and negotiation skills but also to save time by leveraging collective efforts. For instance, in a science class, a science project might involve students working together to design and conduct experiments to understand environmental changes in their local community, whereas in a history class, students could form groups to research different aspects of a historical event and then present their findings to the class.

This teaching method stresses the importance of peer and group work. This fosters an environment where students learn not only from the teacher but also from each other. By encouraging students to work with diverse groups at an early age, teachers adopting this model usually prepare their students for future academic and professional settings (Al-Busaidi and Al Seyabi, 2021). For instance, in a language arts project, students might share, and peer edit each other's writing, offering feedback and learning from diverse writing styles. This can be a group project on cultural diversity which might prompt students to explore different traditions and perspectives within their classroom.

Another merit of adopting project-based teaching method is preparing students to academic college life and professional career (Al-Busaidi and Al Seyabi, 2021). It equips students with essential teamwork skills crucial for success in higher education and beyond. Interestingly, a project focused on entrepreneurship might require students to collaborate on designing and presenting a business plan, mirroring real-world team dynamics.

The current study aims at investigating the differences between lesson plans developed by Arab Open University (AOU) student-teachers in the light of their own dominate teaching styles and the ones produced by Artificial Intelligence (AI). It also aims at highlighting the role of AI tool (ChatGPT) in enhancing the developed lesson plans. The study spots the light on some fundamental questions related to the nature of AI-based applications used by AOU student-teachers and the way of integrating AI in their developed lesson plans, such as using Kahoot and Quizlet.

3. Statement of the Problem

Based on the previous review of literature, the collected data from the teaching styles inventory, the class discussion of the presented lesson plans, and the researchers' experience in the English as a Foreign Language (EFL) teaching/learning field, the researchers felt the need for spotting the light on the differences between lesson plans developed by AOU student-teachers and others created by Artificial Intelligence (AI) tools, such as ChatGPT. They have suggested a midway strategy that aims to aid the student-teachers in developing effective lesson plans by integrating the learnt modern TEFL teaching methods, technology-based and gamification with AI as an education tool.

4. Methodology

The conceptual framework of this research includes its description, aims, duration, participants, hypnoses, approach, design, delivery, instruments, assessment, findings, and discussion.

4.1 Description

The implementation has been administered on a group of Arab Open University (AOU) Kuwait branch students registered in Teaching English as a Foreign Language (TEFL) course, Faculty of Language Studies to investigate the correlation between lesson plans developed by Arab Open University (AOU) student-teachers in the light of their own dominate teaching styles and the ones produced by Artificial Intelligence (AI) ChatGPT. The lesson plans developed by AOU students aim to ensure that day-to-day on-going activities in the classrooms provide students with an adequate level of long-term progress toward the goals outlined in their scope and sequence. They followed the 3Ps (presentation, practice, and production) in developing their lesson plans.

In the presentation stage, the student-teachers should mention the approach of stimulating their learners' interest in the language and how they might elicit from the learners the language they are planning to teach by using a warm-up strategy connecting the learners' previous knowledge with what is going to be presented in the new lesson. This includes providing details as specific as how they would model structures and dialogues and when they will require a repeated response (choral response) from the learners. The student-teachers should create a meaningful context to show how the key concept or structure to be learned is used. They can do this in many ways by drawing pictures on the board with speech bubbles explaining what is happening, using a short video clip, photographs or even miming a short scene if they feel confident in their acting ability.

Regarding the practice stage, the student-teachers should include the specific planned activities and attach handouts related to the lesson plan. They should use many ways to get learners to practice in a controlled manner, such as gap fill exercises, substitution drills, sentence transformations, reordering sentences, matching a picture to a sentence. This stage can include up to three practice activities, sequenced from most to least structured, giving the learners more freedom to work on the given tasks in pairs or in groups.

Later in the production stage, they can provide the learners with guided activities to be conducted on an individual basis to demonstrate what the learners have learned by applying and generalizing the new learnt language skill. They should include exactly what they will ask the learners to do while monitoring, encouraging, and correcting them as needed. In this final stage of the lesson, learners should be given the chance to use the new grammar in a meaningful yet freer way. Some good activities for facilitating this can include role plays, pictures cues, 'find someone who…', information gaps and interviews.

In contrast, the lesson plans, created by Artificial Intelligence (AI) ChatGPT, include the procedures of teaching the target language by asking, explaining, and discussing. Then, it allocates a segment for a story to present content, another for presenting scenarios and role plays then it ends with a recap to conclude what has previously been introduced.

4.2 Aims and Objectives

The research aims to investigate the differences between lesson plans developed by AOU student-teachers and others created by Artificial Intelligence (AI) ChatGPT. It also aims to suggest a midway strategy to aid AOU student-teachers in developing effective lesson plans by integrating the learnt TEFL teaching methods with AI as an education tool.

4.3 Hypothesis

There is a statistically significant difference between lesson plans developed by AOU student-teachers and others created by Artificial Intelligence (AI) ChatGPT in favour of AOU student-teachers lesson plan due to the integration of the learnt TEFL teaching methods.

4.4 Research Significance

The significance of the research stemmed from several possible outcomes and opportunities, such as presenting to tutors and curriculum designers in the humanities and language learning an effective way of planning, designing, and implementing lesson plans incorporating AI tools. Moreover, it aims to add to the literature's quantitative and qualitative findings on the effectiveness of using AI in developing lesson plans. Thus, it is hoped that this study would pave the way for other studies in different domains to further develop and improve the understanding of AI as an educational tool.

4.5 Participants

The participants were 36 students registered in an elective course 'Teaching English as a foreign language (TEFL) for young learners' at Arab Open University (AOU), Kuwait during the academic year 2022/2023. The data collected for this research consisted of (33) written Tutor marked assignment (TMA) of undergraduate students at the Arab Open University in Kuwait. 3 samples were removed from the analysis for not fulfilling the requirement and the needs of the research. The students in this sample are all English Language Studies major. They have completed at least year one.

4.6 Design

The implementation adopted the descriptive design to review and survey previous literature and studies related to the research variables as identified in different teaching methods adopted by AOU student-teachers and AI ChatGPT. A quasi-experimental design was adopted to identify the difference between lesson plans developed by AOU student-teachers and others created by Artificial Intelligence (AI) ChatGPT in the light of the learnt TEFL teaching methods. The student-teachers were asked to create a lesson plan based on a given theme. After submitting the lesson plan on the university's LMS (Learning Management System- Moodle) the students were asked to ask use ChatGPT to design a similar lesson plan using the same theme they had chosen in creating their lesson plan. This activity (ChatGPT lesson plan) was done in the class. Data for this research was also collected from the teaching methods observation checklist which was developed by the researchers and reviewed by another tutor for achieving inter-rater reliability. This observation checklist was divided into four main sections each of which is listing the characteristics of the teaching method namely learner-centred, Student-led (Montessori), project-based, and teacher-centred teaching methods.

4.7 Instruments

The following instruments have been developed by the researchers and validated for readability and reliability by interrater staff tutor:

- Lesson plan template which includes title of the lesson, learners' profile, language skills emphasised, objective, materials, warm-up, presentation, practice, production, assessment, and follow-up.
- Teaching methods observation checklist which includes the characteristics of learner-centred, student-led (Montessori), project-based, and teacher-centred teaching methods.

4.8 Assessment

The assessment technique used in this research is the performance assessment which is a measure of assessment based on authentic tasks that require students to demonstrate their ability to apply what has been learnt in real-world contexts. Performance assessment, also known as alternative or authentic assessment, is a form of testing that requires students to perform an authentic task rather than select an answer from a ready-made list or respond to a certain comprehension question (Darling-Hammond and Adamson 2010). It is to act upon and bring to completion a certain project or assignment. Performance assessment involves displaying one's knowledge effectively to bring to completion a complex product or event. It typically involves the creation of products such as lesson plans. Consequently, this assessment technique was used to evaluate lesson plans developed by AOU student-teachers and others created by Artificial Intelligence (AI) ChatGPT.

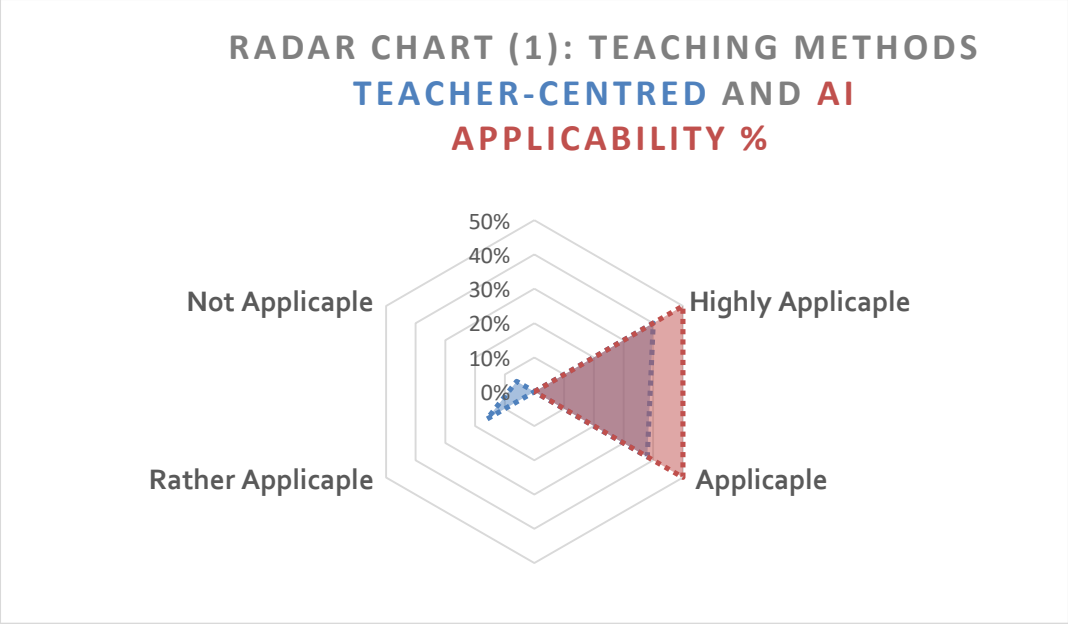
5. Findings and Discussion

To determine the relative extent of differences between lesson plans developed by AOU student-teachers and others created by Artificial Intelligence (AI) ChatGPT, the teaching methods observation checklist was use and the data were statistically analysed as shown below where (HA) stands for Highly Applicable, (A) Applicable, (RA) Rather Applicable and (NA) Not Applicable. The findings are presented

in a table and a spider diagram below.

Table 1. Results of the Teaching Methods Observation Checklist/ Teacher-centred Teaching Method

	AI: Avg. Scores				Students': Avg. Scores			
Row Labels	HA	A	RA	NA	HA	A	RA	NA
Teacher-centred Teaching Method	50%	50%	0%	0%	40%	38%	16%	6%
Consider Students' Individual Differences.	0%	100%	0%	0%	6%	42%	33%	18%
Encourages Students to Take Notes and Ask Questions at The End.	0%	100%	0%	0%	9%	70%	21%	0%
Gives Little Room for Students' Learning and Exploration Outside of The Given Instructions	0%	100%	0%	0%	27%	24%	33%	15%
Impose Rigid Guidelines That Prevents Students Deviate from The Given Instructions	100%	0%	0%	0%	64%	30%	6%	0%
Promotes Discipline and Listening.	100%	0%	0%	0%	55%	45%	0%	0%
Tells The Students Immediately What is Expected of Them.	100%	0%	0%	0%	82%	18%	0%	0%



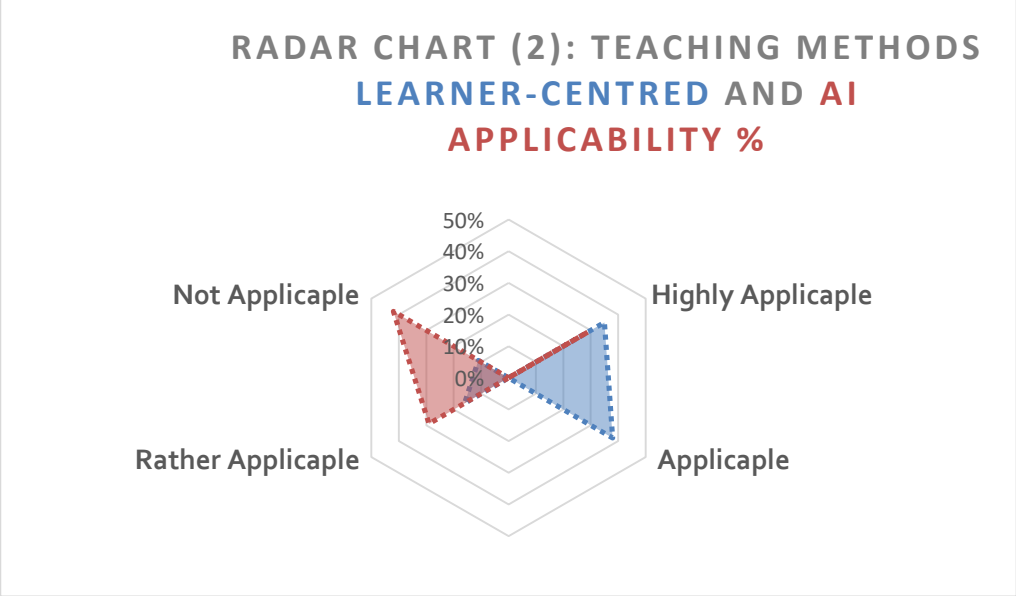
As can be seen in table (1) and radar chart (1), there is no significant statistical differences between the lesson plans created by the AI tool (ChatGPT) and lesson plans developed by AOU student-teachers. Both lesson plans have adopted the teacher-centred method in providing instruction by telling the students immediately what is expected of them, promoting discipline, and listening, imposing rigid guidelines, giving little room for students' learning and exploration, and encouraging students to take notes and ask questions only at the end. This method helps in preventing students' deviation from the given instructions and considers students' individual differences.

Some lesson plans developed by AOU student-teachers (21%) were less authoritative by encourages students to take notes and ask questions from the beginning of the lesson not only at the end. In addition, 48% of AOU student-teachers' lesson plans gave more room for students' learning and exploration outside of the given instructions. However, 51% of AOU student-teachers did not consider students' individual differences. Despite this structured method, considerations for students' individual differences remain essential. Therefore, it is recommended to adopt this feature which was evident in ChatGPT lesson plans.

While teacher-centred method has its strengths in providing clear expectations and structured instructions, it is important for educators to balance this approach by incorporating elements of student-centred method to encourage critical thinking, creativity, and independent exploration. Integrating group discussions, projects, or activities that allow students to provide their own input and insights can complement the structured nature of teacher-centred method.

Table 2. Results of the Teaching Methods Observation Checklist/ Learner-centred Teaching Method

	AI: Avg. Scores				Students': Avg. Scores			
Row Labels	HA	A	RA	NA	HA	A	RA	NA
Learner-Centred Teaching Method	29%	0%	29%	42%	35%	38%	16%	11%
Displays Presentations, Images, Films, And Experiments to Make the Lesson More Applicable to More Learning Styles	0%	0%	100%	0%	85%	9%	6%	0%
Encourages Students to Be Active Participants in Their Learning.	100%	0%	0%	0%	39%	48%	12%	0%
Encourages Students to Come Up with Problem-Solving Strategies, Ask Questions and Simulate What They've Just Learned.	0%	0%	100%	0%	6%	52%	33%	9%
Encourages Students to Work in Formal and/or Informal Pairs or Groups.	100%	0%	0%	0%	67%	24%	6%	3%
Gives Room for Students to Have a Say in What, When, And How They Learns.	0%	0%	0%	100%	12%	64%	21%	3%
Has Rigid Guidelines May Result in Spending Class Time on Unproductive Activities	0%	0%	0%	100%	3%	6%	30%	61%
Monitors and Evaluates Student Work	0%	0%	0%	100%	33%	64%	3%	0%



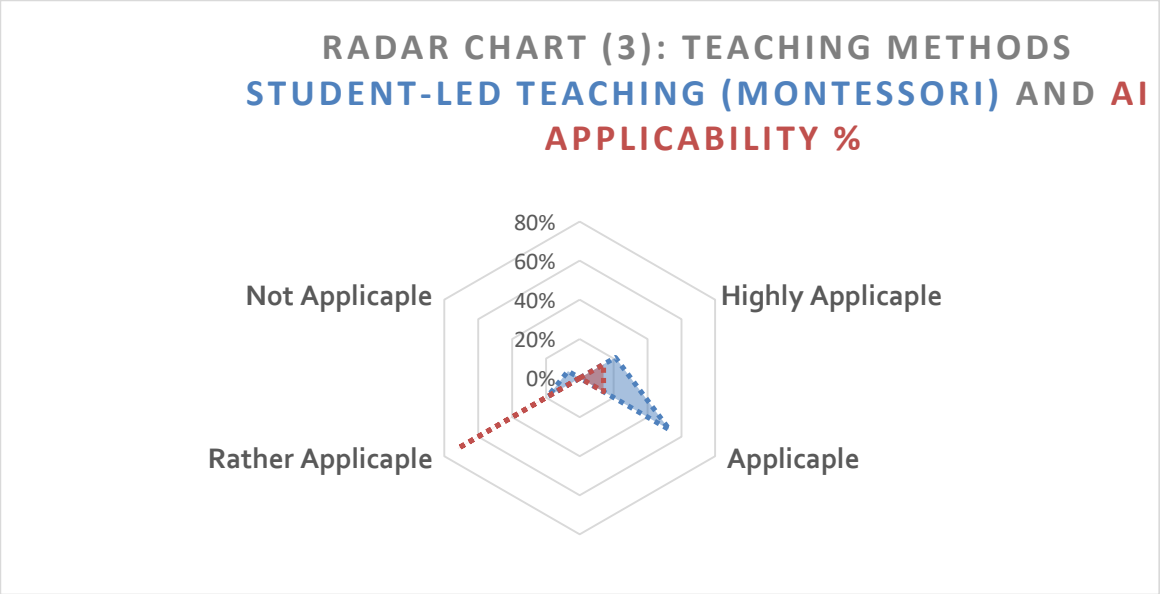
As can be seen in table (2) and radar chart (2), there is a significant statistical difference between the lesson plans created by the AI tool (ChatGPT) and lesson plans developed by AOU student-teachers. Both lesson plans have adopted to different extent the learner-centred method in providing instruction by empowering students through autonomy in decision-making which extends beyond content selection. This method encourages students to develop problem-solving strategies, ask questions, and apply their knowledge through simulations or real-life scenarios, such as case study analysis, role-plays, or hands-on experiments that encourage critical thinking and practical application of theoretical concepts.

The lesson plans developed by AOU student-teachers catered to diverse learning styles (94%) and engaged a broader range of students (87%) through employing various teaching tools such as presentations, images, films, and experiments more than lesson plans created by the AI tool (ChatGPT). These resources make lessons more applicable and engaging, catering to visual, auditory, and kinaesthetic learners, thus enhancing comprehension and retention among students with varying learning preferences. Moreover, lesson plans developed by AOU student-teachers monitored and evaluated student work (97%), yet the ones developed by ChatGPT did not. However, both lesson plans did not have rigid guidelines to reduce class time spent on unproductive activities.

Ultimately, the learner-centred model places a strong emphasis on active student involvement, providing autonomy and fostering critical thinking. By encouraging students to participate in shaping their learning experiences and applying their knowledge, this method promotes deeper understanding and meaningful application of learned concepts, nurturing independent lifelong learners.

Table 3. Results of the Teaching Methods Observation Checklist/ Student-led Teaching Method

	AI: Avg. Scores				Students': Avg. Scores			
Row Labels	HA	A	RA	NA	HA	A	RA	NA
Student-led Teaching Method (Montessori)	14%	14%	72%	0%	21%	53%	19%	7%
Does Not Give Formal Direction Which Can Be Liberating for Some Students and Challenging for Others.	0%	0%	100%	0%	3%	12%	42%	42%
Encourages Inquiry-Based Learning.	0%	0%	100%	0%	6%	73%	18%	3%
Guides Students Towards Self-Motivation Which Develops Self-Sufficiency.	0%	0%	100%	0%	24%	55%	21%	0%
Helps Students Experiment with How and When to Ask for Help.	0%	0%	100%	0%	27%	55%	18%	0%
Maintains Order and Facilitates Lessons as A Resource for Students' Inquisitive Minds.	0%	0%	100%	0%	15%	70%	15%	0%
Places Importance on Holistic Education by Including Mind, Body, And Spirit of The Students in The Lesson	100%	0%	0%	0%	21%	58%	15%	6%
Provides Content and Materials for Students, Then Allows Them to Follow Their Interests (Bring Their Own Knowledge and Expertise into The Class) and Come for Guidance.	0%	100%	0%	0%	52%	42%	6%	0%



As can be seen in table (3) and radar chart (3), there is a significant statistical difference between the lesson plans created by the AI tool (ChatGPT) and lesson plans developed by AOU student-teachers. It is evident that the lesson plans created by ChatGPT did not adopt the student-led teaching method (Montessori) where all the observed principles were Rather Applicable (RA) except for providing content materials that meet students' interest which was Applicable (A) in both lesson plans created by ChatGPT and AOU student-teachers (94%).

Both lesson plans developed by AOU student-teachers and created by ChatGPT did not give enough room for developing independence and decision-Making. Therefore, it is recommended to adopt Montessori's principle of independence and decision making since it allows students to make choices and learn from the consequences. The lesson plans requested the students, during a group work, to decide how to allocate tasks or solve a problem collectively, learning valuable decision-making skills.

The lesson plans developed by AOU student-teachers provided opportunities inquiry-based Learning (79%). Teachers in this teaching method usually encourage curiosity and exploration, fostering inquiry-based learning. For instance, a lesson presenting various realia might inspire students to conduct ask questions about real objects and conduct authentic activities related to real life experience inside and outside classrooms.

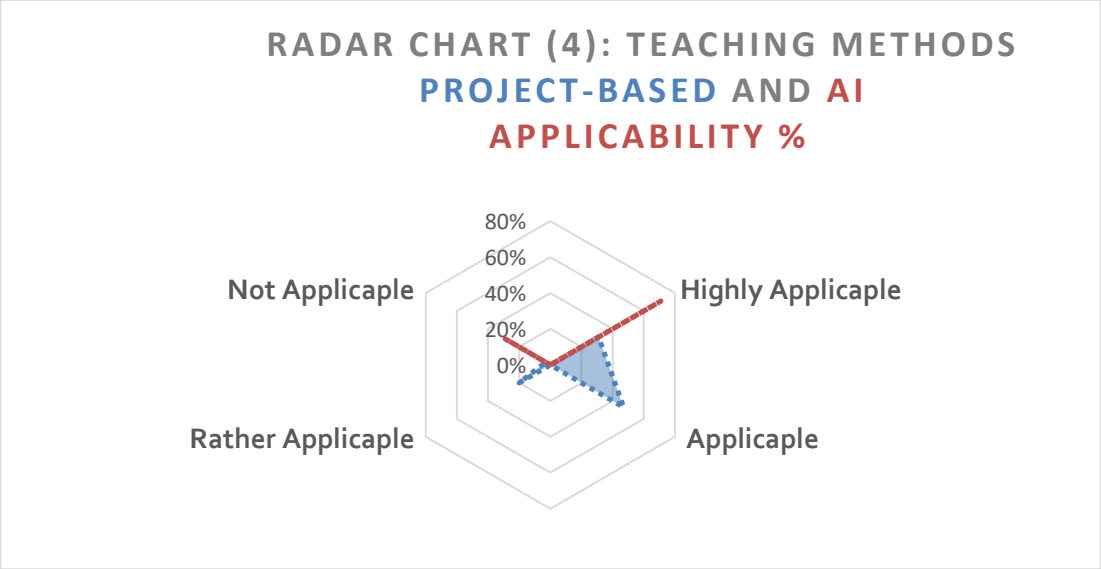
Moreover, the lesson plans developed by AOU student-teachers provided opportunities for promoting self-motivation (79%) where

students learn at their own pace, fostering self-motivation. When a child is engaged in a puzzle or a challenging task, this would encourage him/her to persist until completion, building resilience and self-sufficiency.

In addition, the lesson plans developed by AOU student-teachers adopted holistic Education (79%) where Montessori education was emphasized to develop the whole child's mind, body, and spirit employing activities like yoga or mindfulness (85%) which could be incorporated into the daily routine to promote physical and emotional well-being alongside academic learning.

Table 4. Results of the Teaching Methods Observation Checklist/ Project-based Teaching Method

	AI: Avg. Scores				Students': Avg. Scores			
Row Labels	HA	A	RA	NA	HA	A	RA	NA
Project-based Teaching Method	71%	0%	0%	29%	31%	47%	20%	3%
Adjusts The Lesson Flow and Comes up with The Right Activities to Keep the Students Engaged.	0%	0%	0%	100%	9%	52%	39%	0%
Allows Students Learn From Each Other.	100%	0%	0%	0%	48%	45%	3%	3%
Encourage Students to Work with A Diverse Group of Others at an Early Age.	100%	0%	0%	0%	18%	67%	12%	3%
Facilitates The Discussions and Encourages Learning and Collaboration Among Students.	0%	0%	0%	100%	18%	55%	24%	3%
Groups Students to Solve Problems, Explore Complex Topics, and Discuss Real-World Case Studies.	100%	0%	0%	0%	61%	30%	6%	3%
Prepares Students for College and Beyond, Where Teamwork Is Vital.	100%	0%	0%	0%	6%	39%	52%	3%
Saves Time by Grouping Students.	100%	0%	0%	0%	55%	39%	3%	3%



As can be seen in table (4) and radar chart (4), there is no significant statistical difference between the lesson plans created by the AI tool (ChatGPT) and lesson plans developed by AOU student-teachers. It is evident that the lesson plans created by ChatGPT were allowing students to learn from each other in diverse groups, while 61% of the lesson plans developed by AOU student-teachers had been adjusted when needed to come up with more suitable activities to meet the students' need and learning styles and to keep them engaged. Moreover, 73% of these lesson plans, developed by AOU student-teachers, facilitated discussions, and encouraged collaboration among students.

Each lesson Plan implemented adaptive lesson planning. AOU student-teachers adjusted their lesson plans occasionally to maintain engagement and relevance. For example, they used varied activities (91%) to cater to different learning styles using visual aids, group discussions, or hands-on problem-solving sessions. This helped in facilitating collaborative learning acting as consultant guiding discussions and fostering a collaborative atmosphere. For instance, some lesson plans moderated debates or discussions on real life events/challenges to encourage critical thinking and collaboration empowering students to become active learners and problem-solvers.

By comparing the student-teachers' lesson plan and the ones created by ChatGPT, the following similarities and differences were detected:

5.1 Differences

It is noted that the organization of both plans is not the same. The lesson plans developed by AOU student-teachers were divided into sections and parts following the 3Ps (presentation, practice, and production) as per the shared lesson plan template which was followed in delivering in-class presentations. While the lesson plans created by ChatGPT were linear straightforward using on the same sections

which are the objectives, materials, procedure, and the assessment. The procedure's section was a bulk of instructions for the teacher to follow in presenting the class. In another type of lesson plans, it was noted that ChatGPT had divided the lesson into segments that need to be covered on different days and distributed the objectives and parts of the lesson on separate days.

The instructions used by ChatGPT were very brief addressing the topic in an automated manner, while AOU student-teachers' plans had a great deal of details. They were very meticulous in describing each activity in the class. The student-teachers' plans were organized and followed the given format. Some of the plans were over-detailed and that is because they were abiding by instructions given in the assignment question and the manner of the training they received in class. The given template and format had clear aims and objectives, materials needed for each lesson plan, and the procedure was divided into sections. There was the pre-task, during the task, and the post task sections which are necessary for the organization of the lesson presentation. The student-teachers were very direct and clear in naming the lesson plan objectives. Their lesson plan listed the vocabulary needed for the lesson and the grammar section detailed the grammatical rule covered for the lesson in specific, whereas Chat GPT was unable to provide the vocabulary list for each lesson nor was it able to link the grammar part to the lesson.

5.2 Similarities

It is clear that there are some similarities between the two lesson plans as well. Since ChatGPT is able to access the students' account and sensor their work, previous search history, and title wise, both lesson plans had plenty of similarities in the organization. Both lesson plans were divided into sections, the objectives, material, procedure. The ChatGPT plan also added some assessment and homework.

ChatGPT like the human designed lesson plan was interactive. In some cases, the pair work, group work, in addition to the individual activities were included. In few cases, ChatGPT also used the technology such as videos. Both used the whiteboard, the flashcards, paper and coloured pencils and the power point. In some of the ChatGPT lesson plans, the similarities were very close to the language and ideas and materials used by the student. Below are some examples which highlight the authoritative style adopted by ChatGPT and faciliatory and guide style adopted by AOU Student-teacher:

Table 5. Lesson Plans Similarities and Differences

AOU Student-teacher Lesson Plans	ChatGPT Lesson Plans
Teacher will read the story 'Winnie the Pooh: The Forgiving Friend'	Begin the lesson by asking students if they have heard of Winnie the Pooh. Allow them to share their knowledge and experiences with the characters from the story.
The students will be able to demonstrate understanding of the concept of kindness and its importance in building positive relationships.	Understand the concept of social value and its significance in building a harmonious and inclusive society
Monitor students' participation in the group discussion and review their individual reflections to assess their understanding of the importance of kindness.	Define kindness as a social value and recognize its positive impact on individuals and communities.

As can be seen in table (5), it was noted that ChatGPT was unable to provide a lesson plan that would cover all the requirements of a normal successful lesson. It was highly automated and was dealing with the lesson plan as a text. It is clear that the human factor is missing in ChatGPT lesson plans where the automated lesson plans were based on abstract forms. In contrast, the student-teachers were able to add relevant vocabulary and pin out the grammar elements that would help the learners relate the theme and the topic of the lesson to authentic real-life situations. ChatGPT was using the material used by the student-teachers in their lesson plans which was evident due to the nature of this AI tool which extracts information from human resources especially the users' accounts. ChatGPT was using the student-teachers' accounts as a main source for getting the data needed to create the requested lesson plans.

6. Conclusion

In conclusion, the current research investigated the featuring differences between the lesson plans developed by AOU students and those created by the AI tool CHATGPT. Moreover, it suggests a mid-way strategy in developing lesson plans based on integrating AI tools, such as CHATGPT, Grammarly, Quizlet, Kahoot, Google bard, etc. This integration of Artificial Intelligence (AI) in educational settings represents a paradigm shift, introducing innovative approaches such as personalized learning and intelligent tutoring systems.

However, this transformation is not without challenges, particularly in the domains of data privacy and equitable access. For example, UNESCO envisions AI-powered classrooms as the future norm, fostering adaptive learning environments, the increase of virtual teachers and lifelong learning platforms that would serve the current rise in continuing education and autonomous learning. Hence, this evolving landscape necessitates ongoing research and responsible implementation to harness the full potential of AI in education.

Moreover, the readiness of educators, especially in terms of technological and pedagogical knowledge, remains a crucial aspect that requires attention and development. Since AI continues to reshape education, it is essential to navigate these opportunities and challenges thoughtfully for a more inclusive and effective educational landscape.

To sum up, the field of education is experiencing transformative changes through the unprecedented integration of Artificial Intelligence, encompassing personalized learning and intelligent tutoring systems. Despite its immense potential, AI introduces challenges concerning data privacy and fair access. Therefore, continuous research and conscientious implementation are essential for substantial evolution in educational settings. The readiness of teachers, particularly in terms of their technological and pedagogical understanding of AI

applications, remains uncertain. Thus, further research should be studying the changing prospects of teachers and students towards AI tool used for pedagogical purposes.

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Authors contributions

Dr. Marine Milad and Ms. Fatema Fayez were responsible for study design and revising. Ms. Fatema Fayez was responsible for data collection. Dr. Marine Milad drafted the manuscript and wrote the review of literature, the methods and the findings and Ms. Fatema Fayez revised it. All authors read and approved the final manuscript. The first/ main author had written 75% of the work, starting with the review of literature, to developing a thesis statement to wording the findings of the study. While the second author Ms. Fatema Fayez contribution was limited to 25% of the work. Her contribution was collecting the data, entering, and analyzing the data in addition to the final revision of the paper. In this paragraph, also explain any special agreements concerning authorship, such as if authors contributed equally to the study.

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Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Obtained.

Ethics approval

The Publication Ethics Committee of the Sciedu Press.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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