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THE ROLE OF THE ENGLISH LANGUAGE TEACHER IN DEVELOPING LEARNING AND TEACHING METHODS, ENHANCING COGNITIVE SKILLS, AND DEVELOPING THE CREATIVE LINGUISTIC SELF OF FEMALE STUDENTS AT UMM AL-QURA UNIVERSITY WITH THE HELP OF ARTIFICIAL INTELLIGENCE

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ABSTRACT

Artificial intelligence (AI) plays a significant role in helping students learns foreign languages. Using Umm Al-Qura University's course under the title of "English for Medicine as a Second Language" as a model, this study examines English language teachers' development of learning and teaching methods using AI to enhance female students' cognitive skills and foster their creative linguistic self at Umm Al-Qura University. A questionnaire was used for data collection. The results demonstrated the effectiveness of AI-supported teaching and learning methods, which, improved the students' linguistic acquisition, ability to translate medical terms, and cognitive and problem-solving skills. Bilingual teaching methods supported the students' academic achievement, critical thinking skills, and concentration. The students' creative linguistic self-enhanced their sophistication in expressing new ideas, which gave them the confidence to perform creative tasks successfully and freed them from the anxiety, tension, and fear associated with learning foreign languages.

KEYWORDS: Artificial Intelligence, Learning and Teaching, Cognitive Skills, Creative Linguistic Self.

1. INTRODUCTION

The rapid development of artificial intelligence (AI) technology has fostered the creation of new methods for learning and teaching English as a foreign language (EFL). Although teachers have long used various multimedia platforms to make their classrooms active and engaging, these traditional methods were solely focused on explaining the course material and neglected the direct interactions between teachers and students in language learning. Consequently, language students may passively absorb knowledge and lack enthusiasm for learning. Using AI not only transforms these students' language outcomes and makes language learning a part of their daily lives, but it also plays a key role in promoting innovation and reforming EFL teaching practices. Therefore, it is crucial to improve the quality of language learning by incorporating the use of AI tools, as they can play a supporting role in both students' and teachers' teaching and learning, in addition to correcting the shortcomings of traditional teaching methods (Seif Eldin, 2024).

Walker et al. (2007) highlighted the importance of using AI applications to generate written texts, develop students' skills in constructing texts and sentences, and practice their reading and writing skills. Similarly, Lotze (2016) observed that the use of AI applications, such as smart dialogue boxes and chatbots, helps students develop their English language and linguistic communication skills. These AI applications are effective in bridging the gap between abstract ideas and concrete outcomes, which makes them very important in enhancing users' creativity and critical thinking. As an integral aspect of cognitive skills, critical thinking also provides learners with the necessary analytical and evaluative skills for academic and personal growth (D'Souza, 2021).

Creative writing nurtures imagination, allowing students to think beyond traditional boundaries and explore novel solutions to problems, which is a cognitive skill. As an essential creative language skill, creative writing promotes students' self-expression, imagination, and critical thinking (Fitria, 2024). It enables learners to express their ideas and visions effectively while engaging in their creativity and problem-solving skills. Despite its importance, traditional teaching methods often fail to inspire students to explore their creative potential. Hence, the integration of AI tools into education offers an ideal solution by providing technologies that facilitate personalized and interactive learning (Bhutoria, 2022).

The teachers' role is to design specific, goal-oriented prompts to guide AI models in generating outputs that stimulate their students' creativity and curiosity, such as encouraging students to explore genres, experiment with narrative styles, or use AI-generated images to visualize abstract concepts (Lai & Lee, 2024). This process enhances students' creative writing skills and fosters a deeper understanding of the interplay between language and technology.

Linguistic self-awareness is considered one of the most important variables in students' education due to its significant role in their confidence and linguistic self-efficacy, which increases their positivity and enthusiasm for obtaining creative linguistic skills (Nizar & Al-Abed, 2016). The possibility of linguistic self is the fundamental basis of achieving mental abilities of the students, and preparing them to scientifically develop their creative abilities on the basis of cultivating creativity, rather than memory (Mahmoud, 2006).

The research problem used in the study is the role of the English language teacher in designing learning and teaching strategies to enhancing the cognitive skills of the female students and encouraging them in having their creative linguistic self at Umm Al-Qura University with the help of AI tools.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Theoretical Framework

2.1.1. Developing Teaching and Learning Methods

Efforts to improve English language teaching and learning practices have seen many academics and practitioners focus their design efforts on facilitating teaching and learning English language skills. The use of AI to support these efforts has significantly increased in recent years.

Multiple research investigations have revealed a pattern indicating increased artificial intelligence utilization for enhancing linguistic competency development and composition abilities relative to alternative academic fields (Crompton et al., 2022). Digital technology has served as essential infrastructure within English instruction and acquisition contexts (Rivera Barreto, 2018), since it supplies pedagogical materials and learning assets, stimulates learner engagement (Larsen-Freeman & Anderson, 2011), streamlines educational processes (Ahmadi, 2018), and presents innovative methodologies for linguistic development (Gilakjani, 2017).

As a multifaceted technology, AI applications have two use cases in education: learner-facing, where students use AI to learn, and teacher-facing, where teachers use AI to support their teaching activities, such as assessment (Pokrivčáková, 2019).

Artificial intelligence technologies enable the processing of substantial data volumes. Furthermore, these systems can interpret and respond to human communication through various modalities including verbal, auditory, and written interactions by recognizing linguistic structures and conventions. Initially, conversational agents functioned as rudimentary AI applications that utilized constrained textual responses for addressing basic inquiries. However, by late 2022, these conversational systems experienced remarkable advancement through AI transformer architectures and comprehensive language models developed by platforms such as ChatGPT, Gemini (Google, Mountain View, CA, USA) and Claude (Anthropic, San Francisco, CA, USA). These advanced conversational systems demonstrate considerable promise for second language instruction, particularly in facilitating prolonged student dialogues and supplying compositional exemplars across various textual forms (Bozkurt et al., 2023).

Though the modern artificial intelligence technologies have shown exceptional competence in the teaching and learning of English, the fulfilment of this potential depends on the extensive understanding of these technologies. Moreover, English teachers should understand the way to combine their teaching practices with such AI technologies in order to improve their teaching and learning systems. Teachers are expected to be aware of the limitations and possible difficulties associated with the adoption of AI in English language learning so that they could plan strategically to prevent or respond to them. Researchers who examine the use of AI in English teaching have also noted that AI systems do not have the ability to experience emotions (Annamalai et al., 2023). Although it is possible that AI will have the ability to experience emotions in the forms of textual description and avatar facial expression, these systems will never be able to actually feel human and can only reproduce the content and displays of certain emotions due to programmed responses since the current technology is inadequate to simulate genuine emotions. On par with this, Wang et al. (2023) developed instructional methodologies and later experienced challenges when implementing AI, as they found their artificial intelligence system to act detached and inflexible in its performance directions.

Cognitive Skills The benefits of learning a new language go beyond improving communication skills. Neurological research has demonstrated that acquiring a second language can significantly enhance various cognitive functions, providing a powerful tool for health and function. One of the most notable findings is the potential for bilingualism to delay the onset of dementia. Those who had two or more languages were discovered to be developing dementia four and half years later than monolingual individuals, irrespective of the level of education, gender and even occupation (Alladi et al., 2013). This observation demonstrates the overall significance of language studies on the current cognitive well-being.

The positive cognitive effects of language learning do not apply to older adults only. The bilinguals showed better at the executive functioning task, especially in such domains as attention, focus, and impulse control (Bialystok & Martin, 2004), indicating that language acquisition gives the children an early cognitive edge during childhood (Bialystok, 2003).

Brain plasticity plays a crucial role in these cognitive improvements. Learning a new language changes the density of grey matter in areas associated with language learning, effectively reshaping brain function (Society for Neuroscience, 2008). This neuroplasticity extends beyond language centres, affecting areas responsible for attention, inhibition, and switching between brain tasks. In addition, language learning has been linked to improved memory functions. Adults who studied a new language showed significant improvements in working memory compared to a control group (Bowerman, 2012).

The ability to learn a language enhances cognitive performance in various areas of life. Interestingly, multilingualism enhances decision-making skills. A foreign language reduces decision-making biases, which lead to more rational choices at both the personal and professional levels (Keysar et al., 2012). Thus, the benefits of language learning extend traditional cognitive measures to impact higher-order thinking processes.

The cognitive benefits (i.e. cognitive skills) of language learning are broad and well supported by scientific research. Whether the goal is to maintain mental health, enhance problem-solving abilities, or expand cultural understanding, acquiring a new language offers a multifaceted approach to enhancing these cognitive skills. Although our world has become a global village, the ability to speak multiple languages may become a valuable skill and

an indispensable cognitive necessity.

Creative Linguistic Self On the one hand, the concept of linguistic self describes students' understanding of themselves according to their feelings, sensations, and the extent of their enjoyment in learning a second language and its related skills. The idea also explains how well students comprehend the factors that contribute to their success or failure and how well they are able to assess their diverse skill sets with assurance and competence (Alsewfy, 2020, pp. 504–505). Conversely, students' creative self is defined as their level of confidence in their knowledge, skills, and abilities, which allows them to confidently engage in creative thinking (Elfiel, 2020, p. 188). Combining these two ideas allows for the following crystallization of the idea of the creative linguistic self:

The student's belief in the extent of his ability to practice language creatively, expressing his mental perceptions of the elements of imagination in a refined literary style, possessing the characteristics of fluency, originality, and flexibility, and enjoying the ability to judge his competence and the extent of his sense of self regarding that linguistic practice, according to the situation he is exposed to, whether it is related to writing, reading, or speaking.

Importance of Developing Creative Linguistic Self Successful self-realization in general, and creative linguistics in particular, makes students feel happy and comfortable and keeps stress and anxiety away. Consequently, these students become well-adjusted and psychologically healthy individuals. They value themselves, plan ambitious but achievable goals, persevere, and always strive to achieve success and a sense of self-satisfaction (Subhan, 2021, p. 16).

The concept of linguistic self is considered an important variable in the educational process, as it has a significant impact on students' linguistic self-efficacy, helping them gain confidence in their linguistic abilities and achievements. The more students are aware of their linguistic self, the more their level of academic achievement improves (Nizar & Al-Abed, 2016, p. 1051). The importance of linguistic self to students is also due to their greater confidence strengthening their belief in their ability to express novel ideas. Students also see things from different perspectives, as their creative performances represent their patience, perseverance, and capacity to employ language to achieve their goals (Al-Zoubi, 2014, p. 479).

2.2. Literature Review

AI plays a significant role in enhancing EFL teacher preparation programmes. The use of AI in EFL teaching in general, and in EFL teacher preparation programmes in particular, has become a necessity of the era. Artificial intelligence implementation can assist instructors within English as a Foreign Language teacher training programs to enhance their preparation program standards, strengthen pedagogical competencies, support individualized instruction, obtain superior educational materials, recognize learning deficiencies, instructional preferences, and responsive educational approaches, while promoting ongoing professional growth. This study recommends that AI be used to help qualified EFL teachers keep pace with our rapidly changing digital age and maximize their nurturing of the next generation of students, who are now called digital learners (Seif Eldin, 2024).

Examining trends in conversational AI technologies within English language instruction, Lai and Lee (2024) studied the trends in the utilization of conversational AI technologies in English language instruction along the lines of deployment trends, tool types, research methodologies, learning outcomes, and factors influencing their use. The findings show that Google Assistant was the AI chatbot most commonly used (25%). In addition, conversational AI has favorable incidences concerning cognitive (41%) and emotional (43%) skills, although individual characteristics (47%) primarily affect the belief of users or associated behaviors. The research study thus suggests the integration of new AI systems like ChatGPT in the process of teaching the English language in order to evaluate both behavioral learning performance and broader contextual factors.

The results have shown that among the most commonly used artificial intelligence conversational systems, Google Assistant was a representative (25%), and dialogue-based AI produced positive results in the affective competencies (43%) and intellectual capabilities (41%), whereas personal variables (47%) were the major factors influencing the user attitudes or behaviors. The study proposes the integration of modern technologies, such as ChatGPT, exploration of behavioral educational successes, and a study of the overall contextual factors.

Xia et al. (2023) demonstrated that scholars have initiated a transition in their attention from linguistic achievements toward investigating how artificial intelligence can enhance learners' intellectual capabilities, which may advance students' continuous educational competencies, including

employing AI to facilitate self-directed learning (SRL).

The objective of Darwin et al. (2024) was to investigate English as Foreign Language learners' perspectives regarding artificial intelligence advantages and constraints within a critical-reasoning context. The scholars conducted this investigation using a qualitative methodology framework centered on case study analysis and partially-structured interviews. Seven graduate-level participants from two Indonesian higher education institutions were deliberately chosen for the research population. The results revealed that participants possessed sophisticated understandings of critical reasoning, demonstrated through challenging established practices, examining circumstances, and assessing supporting materials. The participants embraced AI assistance to strengthen elements of their analytical thinking, encompassing scholarly investigation and theoretical examination. However, there were also concerns about some limitations of AI, such as customization, potential echo chambers, and difficulty in obtaining an accurate understanding.

According to Darwin et al. (2024), AI could be an effective tool for developing critical thinking provided that proper precautions are undertaken. The balanced approach of addressing AI's strengths, as well as its shortcomings, must be applied to enable EFL students to foster strong critical thinking skills. The limitations of their study consist of biases in self-reporting and the participants' having diverse backgrounds that might impact the generalization of the study findings. Therefore, by using objective methods such as observations or psychometric tests, future studies should probe into pedagogical approaches to the beneficial blend of critical thinking with AI applications.

Generative AI, particularly following ChatGPT's introduction, have substantially revolutionized educational practices by strengthening autonomous learning regulation and analytical reasoning capabilities, which remain essential within contemporary technological contexts. Sardi et al. (2025), performing comprehensive systematic examination of 38 investigations, discovered generative AI's influence on these competencies and demonstrated that 71.4% of these research studies documented AI's beneficial contribution to SRL, through individualized instruction, intellectual assistance, and responsive guidance. Correspondingly, 62.5% of the investigations supported AI's vital function for analytical reasoning, facilitating examination, assessment, and contemplation. Sardi et al. (2025), however, warned about the drawbacks of heavy reliance on AI technology, which may erode the capacity of some students to think for themselves. This research suggests that educational institutions need to begin shaping newer methods by having generative AI work with models toward areas that foster learner autonomy. This will also enable educators and policymakers to synergize the traditional character of AI with its new innovative role in the establishment of creative and future-oriented learning spaces.

Mahmoud et al. (2023) investigated the development of creative linguistic self among gifted secondary school students to identify the effects of AI applications on their development. A scale for measuring creative linguistic self and a list of 27 dimensions of creative linguistic self were created. Following a quasi-experimental approach among 30 students, Mahmoud et al. (2023) identified statistically significant differences between students' average scores in these dimensions. They recommended that AI applications be used in the teaching process, with particular attention paid to the development of students' creative linguistic self.

Hence, this study aims to achieve the following

1. Measure the role of the English language teacher in using AI to develop learning and teaching practices among female students taking the English for Medicine as a Second Language course at the College of Medicine at Umm Al-Qura University.
2. Measure the extent of the English language teacher's ability to use AI to help enhance cognitive skills among female students taking the English for Medicine as a Second Language course at the College of Medicine at Umm Al-Qura University.
3. Measure the extent of the English language teacher's ability to use AI to develop creative linguistic self among female students taking the English for Medicine as a Second Language course at the College of Medicine at Umm Al-Qura University.

These three measurements illustrate the three themes explored in this work. The following research questions reflect the three aforementioned measures

1. Does the use of AI by the English language teacher help enhance learning and teaching practices among female medical students in the English for Medicine as a Second Language course at Umm Al-Qura University?
2. Can the English language teacher use AI to enhance the cognitive skills of female medical students in the English for Medicine as a

Second Language course at Umm Al-Qura University?

3. Can the English language teacher use AI to develop creative linguistic self among female medical students in the English for Medicine as a Second Language course at Umm Al-Qura University?

3. METHODS

The reality of AI as a modern tool for future educational purposes must be embraced, as it has a significant impact on learning and teaching methods, enhancing cognitive skills, and developing creative linguistic self. in addition to the important role of human English language teachers in guiding their students and meeting their English as a second language (ESL) need.

3.1. Subjects

Using the English for Medicine as a Second Language course as a model, the statements used in the study questionnaire were based on original research into the role of the English language teacher in developing teaching and learning styles using AI to enhance cognitive skills and foster creative linguistic self among first-year female students at the College of Medicine at Umm Al-Qura University in the Kingdom of Saudi Arabia. All statements were constructed for ESL students (i.e. L2 learners) based on a literature review with quantitative questions, and were reviewed by several specialists and researchers in the field to ensure their suitability and effectiveness. In this study, the survey statements were designed to cover all three themes described earlier to obtain quantitative data, and the participants were asked to respond to various statements using a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = moderately agree, 4 = agree, 5 = strongly agree). Theme 1 comprised eight statements, Theme 2 comprised five statements, and Theme 3 comprised four statements. This questionnaire was designed to obtain useful and meaningful insights following a comprehensive and sophisticated analysis of language teaching and learning related to the role of the English language teacher in their students' use of AI based on reliable data. As the Likert-type statements focused on the participating students' knowledge about language teaching and learning methods related to the role of the English language teacher and their use of an AI assistant, they explored the students' perceptions of the teacher's role and their use of AI tools. Therefore, estimating the reliability of a single-item measure using factor analysis is appropriate (Ginns & Barrie, 2004) for a five-point Likert scale. The weighted means on the five-point Likert scale were as follows: 1–1.80, strongly disagree; 1.81–2.60, disagree; 2.61–3.40, moderately agree; 3.41–4.20, agree; 4.21–5.00, strongly agree. The responses to the three themes are described in the following subsections.

Theme 1: Developing learning and teaching methods using AI applications with the help of the teacher through studying the English for Medicine as a Second Language course.

1. I believe that AI applications, with the help of my English teacher, enhance an effective learning environment by encouraging motivation and a desire to learn and by connecting new information to previous knowledge.
2. AI helps me improve my linguistic acquisition of medical information in the course by converting text to speech and recognizing medical visual materials, such as X-ray images and human anatomy.
3. I feel that the guidance of my English teacher with chatbots enhances students' desire, engagement, and positive attitudes towards learning the language, including its various linguistic aspects, such as grammar, vocabulary, and speaking skills.
4. With the guidance of my English teacher, AI has the potential to enhance my academic performance as a student by providing personalized learning opportunities and identifying language areas that need improvement.
5. With the help of my English teacher, AI applications can play an important role in supporting me as a student and as a second language learner and in modifying my current understanding of knowledge or facilitating the acquisition of new knowledge.
6. Linking learning through AI applications to emotional factors (e.g. motivation, engagement, attitude, and anxiety) will facilitate my language learning, as emotional factors play an important role in this and interact with my feelings as a learner and my thinking and behaviour.
7. With the help of my English teacher, AI applications help me translate difficult medical terms in the curriculum to better understand them.
8. When I encounter an unfamiliar medical term, I resort to AI applications to understand it within its textual context without having to resort to literal translation while also seeking

guidance from my English teacher.

Theme 2: The role of the English teacher in enhancing cognitive skills using AI applications.

1. I believe that the advice of my English teacher and the help of AI applications can help me, as a student, improve my cognitive skills, such as by enhancing memory and preventing cognitive decline.
2. I feel that AI applications, with the help of the English teacher's guidance, can help me as a student improve my cognitive skills by enhancing my problem-solving abilities, so that multilingual students have the ability to think flexibly and approach problems from multiple perspectives.
3. I believe that the guidance of my English teacher, aided by AI applications, can help me, as a student, improve my cognitive skills by increasing my attention, focus, and mindfulness amidst various distractions, as learning multiple languages requires filtering out irrelevant information and focusing on relevant information.
4. I feel that the assistance of my English teacher with AI applications can help me, as a student, improve my cognitive skills, as bilingualism can have positive effects on academic achievement.
5. I feel that the combined efforts of my English teacher, aided by AI applications, can help me, as a student, improve my cognitive skills by enhancing my deep critical thinking skills in academic subjects and enabling me to analyse information, draw conclusions, and evaluate critically and independently.

Theme 3: The role of the English teacher in developing creative linguistic self using AI applications.

1. I believe that the guidance of my English teacher, with the help of AI applications, can help me, as a student, develop a sense of my creative linguistic self. This self-awareness reflects my understanding of myself, based on my feelings and emotions, in learning English and its skills, whether related to reading, writing, or speaking, and my ability to accurately, confidently, and positively evaluate myself in these skills.
2. I believe that AI applications and the guidance of my English teacher can help me, as a student, improve my proficiency in my creative linguistic self, represented by my confidence in my ability to successfully perform creative linguistic tasks, such as expressing and writing in a compelling way that makes me feel happy and satisfied and frees me from fear, anxiety, stress, and boredom.
3. I believe that the efforts of my English teacher, with the help of AI applications, can enable me, as a student, to develop my creative linguistic self through my ability to generate new and innovative ideas and see things from a perspective different from that of others.
4. I believe that the practices of my English language teacher, with the help of AI applications, can help me, as a student, enhance my creative linguistic self by improving my ability to express my thoughts in a linguistic style that is correct, fluent, flexible, and authentic.

3.2. Data Sources

Data were collected after receiving approval from Umm Al-Qura University in 2025. Thirty-six female students from the College of Medicine at Umm Al-Qura University were invited to participate in this research study, and all of them voluntarily responded to the questionnaire. The collected data were then quantitatively analysed based on these 36 responses without any missing data. The descriptive statistics extracted from the quantitative data and Spearman's rank correlation (SPSS, v. 26) were interpreted to answer the research questions.

4. RESULTS AND DISCUSSION

Table 1 shows the value of the reliability coefficient for the research scales, as the 17 statements in the research themes were distributed to 36 female students. Hence, the reliability coefficient ratio (i.e. Cronbach's alpha) reached .858, which indicates a high degree of reliability in the three research themes, and can be trusted in applying the research tool.

Table 1: Reliability Statistics.

Cronbach's α	No. of items
.858	17

4.1. Internal Consistency and Validity

In this study, internal consistency refers to the extent to which the questionnaire items are consistent with the related theme—that is, whether the statement measures what it was designed to measure and does not measure anything else. Hence, we calculated the Pearson correlation coefficients between the score of each thematic statement and the total score of the theme to obtain r-values.

Theme 1: Developing learning and teaching methods using AI applications with the help of the teacher through studying the English for Medicine as a Second Language course.

Table 2. Shows that all items were related to the Theme 1 hypothesis, indicating that they are all statistically significant, as their calculated correlation coefficients were greater than the tabular r-value, with a strong significant correlation at the 0.01 level. Therefore, the Theme 1 items are considered valid and internally consistent.

Table 2: Internal Consistency of the Statements in Theme 1.

No.	Statement	Pearson's correlation coefficient
1	I believe that AI applications, with the help of my English teacher, enhance an effective learning environment by encouraging motivation and a desire to learn and by connecting new information to previous knowledge.	.702**
2	AI helps me improve my linguistic acquisition of medical information in the course by converting text to speech and recognizing medical visual materials, such as X-ray images and human anatomy.	.660**
3	I feel that the guidance of my English teacher with chatbots enhances students' desire, engagement, and positive attitudes towards learning the language, including its various linguistic aspects, such as grammar, vocabulary, and speaking skills.	.473**
4	With the guidance of my English teacher, AI has the potential to enhance my academic performance as a student by providing personalized learning opportunities and identifying language areas that need improvement.	.756**
5	With the help of our English language teacher, AI applications can play an important role in supporting L2 students in modifying our current understanding of knowledge or facilitating the acquisition of new knowledge.	.672**
6	Linking learning through AI applications to emotional factors (e.g. motivation, engagement, attitude, and anxiety) will facilitate my language learning, as emotional factors play an important role in this and interact with my feelings as a learner and my thinking and behaviour.	.710**
7	With the help of my English teacher, AI applications help me translate difficult medical terms in the curriculum to better understand them.	.585**
8	When I encounter an unfamiliar medical term, I resort to AI applications to understand it within its textual context without having to resort to literal translation while seeking guidance from my English teacher.	.524**
* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).		

The Theme 1 results (see Table 3) indicate that the weighted average for the seventh statement was highest (4.83), followed by the second (4.75) and eighth (4.64) statements. The first statement had a weighted average of 4.61, followed by the fifth statement (4.58). The third statement had a weighted average of 4.50, followed by the fourth statement (4.47).

Table 3: Frequencies, Percentages, Weighted Averages, and Standard Deviations for Theme 1.

Statement No.	Strongly agree	Agree	Moderately agree	Disagree	Strongly disagree	Weighted average	Standard deviation	Ranking	Overall trend
	Frequency	Frequency	Frequency	Frequency	Frequency				
	%	%	%	%	%				
1	24 66.7	10 27.8	2 5.6	- -	- -	4.61	0.599	4	Strongly agree
2	27 75	9 25	- -	- -	- -	4.75	0.439	2	Strongly agree
3	22 61.1	10 27.8	4 11.1	- -	- -	4.50	0.697	6	Strongly agree
4	20 55.6	13 36.1	3 8.3	- -	- -	4.47	0.654	7	Strongly agree
5	24 66.7	10 27.8	1 2.8	1 2.8	- -	4.58	0.692	5	Strongly agree
6	21 58.3	9 25	6 16.7	- -	- -	4.42	0.769	8	Strongly agree
7	30 83.3	6 16.7	- -	- -	- -	4.83	0.378	1	Strongly agree
8	25 69.4	9 25	2 5.6	- -	- -	4.64	0.593	3	Strongly agree
	Weighted average of the theme				4.60				Strongly agree

Finally, the sixth statement had the lowest weighted average (4.42). The overall trend of the responses was 'strongly agree'. These results also indicated that the standard deviation (SD) for all items was < 1, indicating that the students' ratings of these items were consistent.

The students' strong agreement with all statements demonstrates the vital and influential role played by the English language teacher's use of AI applications in developing teaching and learning methods for first-year female medical students in the English for Medicine as a Second Language course. The students used AI to improve their linguistic acquisition of medical information in the course, such as converting text images to speech, recognizing visual medical materials, such as X-ray images and human anatomy, and translating difficult medical terms in the course. This helped the students to better understand these terms, in addition to helping them when encountering unfamiliar medical terms.

Their teacher's impact was also evident in fostering an effective learning environment, as represented by encouraging students' motivation, desire to learn, and linking new information to previous knowledge acquisitions. AI applications were also found to play an important role in supporting L2 students in modifying their current understanding of existing knowledge or facilitating the new knowledge acquisition. Chatbots were also found to enhance students' desire, engagement, and positive attitudes towards language learning, including its various linguistic aspects, such as grammar, vocabulary, and speaking skills. The use of AI is promising for enhancing students' academic performance by providing personalized learning opportunities and identifying language areas that need improvement. Learning using AI applications was related to the students' emotional factors (e.g. motivation, engagement, attitude, and anxiety), which facilitate language learning, as the AI tool may interact positively with the students' feelings, thoughts, and actions. Hence, the teacher's role is an indispensable human factor. As AI applications have become an inevitable reality in education, English language learning and teaching methods must be developed by integrating AI tools into teaching and learning practices.

The findings coincide with those of Jomaa et al. (2025) as these researchers had studied teachers' attitudes towards the use of AI tools in teaching English vocabulary to Omani EFL students. Jomaa et al. (2025) also sought teachers' perspectives on the most common AI tools, integration scenarios, and challenges in this regard. Quantitative results showed that English language teachers had a positive attitude towards the use of AI tools in English language teaching in general and vocabulary in particular, thereby confirming their viewpoints. The teachers found these tools appropriate because they engaged students and enhanced their independence in learning.

Similar to this, Al Mukhallafi (2020) examined the methods where AI could be applied in EFL and learning from the perspectives of college students. His findings testified to just how well an AI-based program is able to improve language proficiency in university students.

Further helping this trend was the study of Alharbia (2024), whereby he investigated the perception regarding the revolutionary impact of artificial intelligence on teaching English as a foreign language in Saudi universities. The findings were that AI-based tools and applications offer tailored learning experiences which fit different kinds of learning preferences and offer student engagement in their language development. Nevertheless, most teachers saw the AI tools as a way to support personalized feedback, cultivate immersion in EFL, and complement their more traditional teaching and pedagogical strategies.

In their study of the impact of AI on English language learners' language acquisition, comprehension, and fluency, Fattah et al. (2023) investigated the use of AI applications in English language classrooms to explore their impact on teaching methods and assess teachers' and students' perceptions. This literature review highlights the diverse uses of AI, including natural language processing and adaptive learning platforms, to achieve personalized learning and improve language proficiency.

This study demonstrated that integrating AI into English language teaching significantly enhances students' language skills and promotes interactive and personalized learning experiences. Furthermore, adopting AI in language education is a transformative approach that meets the diverse needs of English language learners, paving the way for more effective and impactful teaching and learning experiences.

Theme 2: The role of the English teacher in enhancing cognitive skills using AI applications.

Table 4. shows that all items were related to the Theme 2 hypothesis, which indicates that they are all statistically significant, as their calculated correlation coefficients were greater than the tabular r-value, with a strong significant correlation at the 0.01 level. Therefore, the Theme 2 items are considered valid and internally consistent.

Table 4: Internal Consistency of the Statements in Theme 2.

No.	Statement	Pearson's correlation coefficient
1	I believe that the advice of my English teacher and the help of AI applications can help me, as a student, improve my cognitive skills, such as by enhancing memory and preventing cognitive decline.	.447**
2	I feel that AI applications, with the help of the English teacher's guidance, can help me as a student improve my cognitive skills by enhancing my problem-solving abilities, so that multilingual students have the ability to think flexibly and approach problems from multiple perspectives.	.710**
3	I believe that the guidance of my English teacher, aided by AI applications, can help me, as a student, improve my cognitive skills by increasing my attention, focus, and mindfulness amidst various distractions, as learning multiple languages requires filtering out irrelevant information and focusing on relevant information.	.766**
4	I feel that the assistance of my English teacher with AI applications can help me, as a student, improve my cognitive skills, as bilingualism can have positive effects on academic achievement.	.633**
5	I feel that the combined efforts of my English teacher, aided by AI applications, can help me, as a student, improve my cognitive skills by enhancing my deep critical thinking skills in academic subjects and enabling me to analyse information, draw conclusions, and evaluate critically and independently.	.766**
* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).		

The results for Theme 2 (Table 5) clearly indicate that the weighted average was highest for the second statement (4.64), followed by the fourth and fifth statements (both 4.53), the first statement (4.50), and finally the third statement (4.33 The overall trend of the responses was 'strongly agree'. The results also showed that the SD for all items was < 1, indicating that the students' ratings of these items were consistent.

Table 5: Frequencies, Percentages, Weighted Averages, and Standard Deviations for Theme 2.

No.	Strongly agree	Agree	Moderately agree	Disagree	Strongly disagree	Weighted average	Standard deviation	Ranking	Overall trend
	Frequency	Frequency	Frequency	Frequency	Frequency				
	%	%	%	%	%				
1	23 63.9	10 27.8	2 5.6	- -	1 2.8	4.50	0845	3	Strongly agree
2	24 66.7	10 27.8	2 5.6	- -	- -	4.64	0.599	1	Strongly agree
3	18 50	15 41.7	1 2.8	1 2.8	1 2.8	4.33	0.894	4	Strongly agree
4	23 63.9	10 27.8	2 5.6	1 2.8	- -	4.53	0.736	2	Strongly agree
5	21 58.3	13 36.1	2 5.6	- -	- -	4.53	0.609	2	Strongly agree
	Weighted average of the theme			4.51		Strongly agree			

This strong agreement demonstrates the vital and influential role of the English language teacher with the support of AI applications in enhancing the cognitive skills of first-year female medical students. At the top of the students' list of priorities was that the guidance of the English language teacher in using AI applications could help them improve their problem-solving abilities, considering the ability of multilingual students to think flexibly and approach problems from multiple and diverse perspectives. The students also explained that bilingualism can have positive effects on their academic achievement by enhancing their critical thinking skills and enabling them to analyse information, draw conclusions, and evaluate results critically and independently. The students added that learning languages improved their memory, protected them from cognitive decline, and increased their attention, focus, and mental alertness amidst various distractions. Language learning enables students to filter out irrelevant information and focus on relevant information.

These research outcomes align with Kabeer et al. (2025), who examined AI's revolutionary impact and instantaneous technological applications in developing secondary students' imaginative composition abilities. Their findings demonstrated substantial advancement in intellectual capabilities, including originality, inventiveness, and analytical reasoning, with learners exhibiting enhanced self-assurance and motivation toward creative endeavors. These artificial intelligence systems

additionally linked conceptual notions with graphic representations, allowing participants to interact profoundly with exercises and construct compelling narratives. Numerical data examination showed measurable enhancement in descriptive and creative composition, with notable development in learners' capacity to articulate concepts. Qualitative responses additionally highlighted participants' favorable encounters, emphasizing their recognition of cooperative education and AI-facilitated tasks' participatory characteristics. These discoveries emphasized artificial intelligence literacy's significance, group activities, and autonomous investigation within contemporary schooling while providing actionable guidance for instructors to establish innovative, digitally-enhanced educational settings through AI integration into teaching methodologies. These outcomes additionally revealed elevated creativity levels, which stimulated students' analytical reasoning and established pathways for more vibrant and comprehensive classrooms—representing substantial advancement to expanding technology-integrated education discussions. Moreover, these findings illuminate AI's function in diminishing composition apprehension through instantaneous responses and organized prompts, which assist learners in developing intellectual abilities and comprehending concepts efficiently. The outcomes additionally indicate that AI-supported education promotes individualized creative writing approaches, accommodates varied educational preferences, and strengthens personal skill advancement.

Theme 3: The role of the English teacher in developing creative linguistic self using AI applications.

Table 6 shows that all items were related to the Theme 3 hypothesis, which indicates that they are all statistically significant, as their calculated correlation coefficients were greater than the tabular r-value, with a strong significant correlation at the 0.01 level. Therefore, the Theme 3 items are considered valid and internally consistent.

Table 6: Internal Consistency of the Statements in Theme 3.

No.	Statement	Pearson's correlation coefficient
1	I believe that the guidance of my English teacher, with the help of AI applications, can help me, as a student, develop a sense of my creative linguistic self. This self-awareness reflects my understanding of myself, based on my feelings and emotions, in learning English and its skills, whether related to reading, writing, or speaking, and my ability to accurately, confidently, and positively evaluate myself in these skills.	.710**
2	I believe that AI applications and the guidance of my English teacher can help me, as a student, improve my proficiency in my creative linguistic self, represented by my confidence in my ability to successfully perform creative linguistic tasks, such as expressing and writing in a compelling way that makes me feel happy and satisfied and frees me from fear, anxiety, stress, and boredom.	.821**
3	I believe that the efforts of my English teacher, with the help of AI applications, can enable me, as a student, to develop my creative linguistic self through my ability to generate new and innovative ideas and see things from a perspective different from that of others.	.698**
4	I believe that the practices of my English language teacher, with the help of AI applications, can help me, as a student, enhance my creative linguistic self by improving my ability to express my thoughts in a linguistic style that is correct, fluent, flexible, and authentic.	.631**
* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).		

The results for Theme 3 (Table 7) indicate that the fourth statement had the highest weighted average (4.61), followed by the third statement (4.47) and the first and second statements (both 4.3). The overall trend of the responses was 'strongly agree'. The results also showed that the SD for all items was < 1, indicating that the students' ratings of these items were consistent.

The students agreed that with the English language teacher's guidance, AI applications could help them enhance their linguistic self-efficacy by improving their ability to express their ideas in a fluent, flexible, and original linguistic style. AI applications could also enhance students' ability to generate new and innovative ideas and see things from different perspectives. In addition, the students could develop their creative linguistic identity—that is, they could understand themselves as students based on their feelings when learning English skills, such as reading, writing, or speaking. Using AI

applications could also give students the ability to accurately, confidently, and positively evaluate their own skills, which gave them the confidence and ability to successfully perform creative linguistic tasks, such as expressing themselves and writing, which made them feel happy and satisfied. Therefore, the students did not experience the fear, anxiety, tension, and boredom that often accompany learning foreign languages.

Table 7: Frequencies, Percentages, Weighted Averages, and Standard Deviations for Theme 3.

No.	Strongly agree	Agree	Moderately agree	Disagree	Strongly disagree	Weighted average	Standard deviation	Ranking	Overall trend
	Frequency	Frequency	Frequency	Frequency	Frequency				
	%	%	%	%	%				
1	17 47.2	14 38.9	5 13.9	- -	- -	4.33	0717	3	Strongly agree
2	20 55.6	9 25	6 16.7	1 2.8	- -	4.33	0862	3	Strongly agree
3	20 55.6	13 36.1	3 8.3	- -	- -	4.47	0.654	2	Strongly agree
4	23 63.9	12 33.3	1 2.8	- -	- -	4.61	0.549	1	Strongly agree
	Weighted average of the theme					4.44			Stron

Our findings were aligned with those of Al-Shidi (2024), who highlighted the importance and impact of AI tools on English language learning for Gulf College students based on their teachers' opinions and perspectives. Al-Shidi (2024) findings highlighted the positive effects of AI-enabled resources on students' motivation, development of creative language skills, and overall enjoyment of language learning, which enhanced their oral and writing skills. Though educational technologies provided vital and engaging tools for students' language learning, the divergent opinions regarding students' interest in AI-based tools and technology indicated the need for improved and tailored AI solutions that cater to individual tastes. Our results offer several suggestions for improvement. For example, colleges and universities should explore integrating AI-based language learning tools with current practices in recognition of their potential to enhance students' motivation and creative language skills. Furthermore, teachers should strive for a harmonious blend of technological tools and traditional teaching methods to support students' diverse abilities.

Our results are also aligned with those of Abdul Qader et al. (2023), who studied the impact of AI applications on the development of creative linguistic identity among gifted secondary school students. Their results indicated that diversifying the AI applications used in teaching linguistic texts, as well as linguistic tools and activities, contributed to capturing the students' attention and provided them with the opportunity to interact individually with the content based on their abilities, readiness, and potential. This made the students responsible for their own learning, which led to individual expressions of their understanding of linguistic texts using different learning methods and communicating with the teacher. This helped the students experience the joy of learning in using language efficiently, which increased their positive attitudes towards themselves. In particular, positive self is an important dimension of creative linguistic identity.

Our results, in regards to AI agent interventions, align with those of Wei (2023), who studied the role of AI-assisted language learning in EFL students' achievement, L2 motivation, and self-directed learning and found significant impacts. Such effects entailed learners assisted with AI outperforming those not assisted by AI in every single measure considered. The results from an interview indicated that the participating EFL learners also exhibited very positive attitudes toward language learning assistive technology through AI for enhancing their English achievement, L2 motivation, and self-directed learning. Considering all of the above, the results may stem from the fact that AI tools allow EFL learners to get immediate feedback, to tailor their language learning environment, and to engage more in language activities.

Table 8 clearly shows that Theme 1 outperformed the other two themes with a weighted average of 4.60, as Themes 2 and 3 had weighted averages of 4.51 and 4.44, respectively. The students' responses to all themes showed a general trend of 'strongly agree'. These results demonstrate the importance of the role of the English language teacher and the

support of AI applications in developing learning and teaching methods for the English for Medicine as a Second Language course taken by female students at the College of Medicine at Umm Al-Qura University. The findings also reveal the influential role of the English language teacher and the use of AI applications in enhancing students' cognitive skills, as well as their significant role in developing creative linguistic self.

Table 8: Themes, Weighted Average Ranking, and General Trends.

Theme	Weighted average ranking	General trend
1. English language teachers' development of learning and teaching methods using AI applications for first-year students in the English for Medicine as a Second Language course	4.60	1
2. Role of the English language teacher in promoting AI applications to enhance students' cognitive skills	4.51	2
3. Role of the English language teacher in using AI applications to develop students' creative linguistic self	4.44	3

5. CONCLUSION

The study results provide valuable insights into English language teachers' vital role as an indispensable human factor and the inevitable reality of using AI applications to develop learning and teaching methods. For first-year female medical students taking the English for Medicine as a Second Language course, the study aimed to clarify the role of the English language teacher in developing learning and teaching methods, enhancing cognitive skills, and developing the creative linguistic self, with the help of artificial intelligence for female undergraduate medical students who study English as a second language. The use of AI chatbots enhanced students' desire, engagement, and positive attitudes towards language learning, including various linguistic aspects, such as grammar, vocabulary, and speaking skills.

Hence, AI holds promise for enhancing students' academic performance, as it provides personalized learning opportunities and identifies areas of language learning that need improvement. Using AI applications to link learning to affective factors (i.e. motivation, engagement, attitude, and anxiety) was found to facilitate language learning. Language learning also improves memory and prevents cognitive decline while increasing attention, focus, and mental alertness.

Furthermore, the vital and influential role of the English language teacher and the support of AI applications in enhancing students' cognitive skills was demonstrated by improvements in the students' problem-solving abilities and flexible thinking. Bilingualism has also been shown to have positive effects on academic achievement by strengthening students' critical thinking skills and ability to analyse information, draw conclusions, and evaluate results critically and independently.

With the guidance of an English language teacher, AI applications have also been shown to develop students' creative linguistic self by enhancing their ability to express their thoughts linguistically, enhancing their ability to generate new and innovative ideas, and helping them develop a sense of creative linguistic self. This creative linguistic identity refers to students' increased understanding of their feelings and emotions through learning English through reading, writing, and speaking. Strengthening creative linguistic identities also gives students the ability to evaluate themselves accurately, confidently, and positively in these English language skills. Students acquire the confidence and ability to successfully perform creative linguistic tasks, such as expressing themselves and writing in a compelling way that makes them feel happy and satisfied, and relieves them of the fear, anxiety, stress, and boredom associated with learning foreign languages. Hence, the results of this study highlight the need to integrate the human role of the English language teacher with AI applications in female students' foreign language learning.

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