Journal of Al-Farabi for Humanity Sciences Volume (9) Issue (5) 31May (2026)

ISSN: 2957-3874 (Print)
Journal of Al-Farabi for Humanity Sciences (JFHS)
https://iasj.rdd.edu.iq/journals/journal/view/95
مجلة الفارابي للعلوم الإنسانية تصدرها جامعة الفارابي

Efficiency and Perception of Traditional Teaching Methods and AI Apps for Under Graduates Learning English (UGLE) as a Foreign Language

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كفاءة وإدراك طرق التدريس التقليدية وتطبيقات الذكاء الاصطناعي لدى طلبة المرحلة الجامعية في تعلم اللغة الإنكليزية بوصفها لغة اجنبية

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Abstract

This study focused on how effective of traditional teaching methods TTM in comparison with the AI used for EFL instruction (learning of English as a Foreign Language) works among undergraduates learning English UGLE. It used a mixed research design that included a group of undergraduates from Iraq, which was then split into two groups (one which underwent traditional instruction and one received usual instruction along with the use an AI application in their teaching). Quantitative data were gathered from pre-and post-tests on vocabulary acquisition, and the qualitative ones through students' surveys and interviews on the perceptions.Statistical results show students who used AI applications to learn and understand language words, scientific vocabulary have achieved a vocabulary capacity at approximately 70% high level of comprehension and understanding. The qualitative analysis showed that students experienced AI applications as "more engaging and personalized" with the teacher's scientific texts. And literary subjects -material of 30% of the students' perception- are not handled efficiently by AI tools.The average rate of understanding in the group that practised classical methods of teaching literary materials and texts was 70.0%.In addition, AI applications can serve as an excellent adjunct to traditional EFL teaching methods in science subjects for vocabulary acquisition and student motivation in the pedagogical paradigm of Undergraduate Graduate Language Learning (UGLE).This study recommends that we should enter literary culture data or words into artificial intelligence language data more accurately, and it must be good at handling the literary language used in university courses.Keywords: Artificial Intelligence in Teaching, Conventional Method Of teaching, Student Perception and Effectiveness, Semantic Approach.

المستخلص:

ركّزت هذه الدراسة على مدى فعالية أساليب التدريس التقليدية، مقارنةً بأساليب التدريس باستخدام ادوات لذكاء الاصطناعي المستخدم في تدريس اللغة الإنجليزية كلغة أجنبية، لدى طلاب المرحل الجامعية. حيث استخدمت الدراسة تصميمًا بحثيًا مختلطًا شمل مجموعة من طلاب المرحلة الجامعية في العراق، تم تقسيمهم إلى مجموعتين: تلقت إحداهما التدريس التقليدي، بينما تلقت الأخرى التدريس القياسي المدعوم بتطبيق الذكاء الاصطناعي. جُمعت البيانات الكمية من خلال اختبارات قبلية وبعدية حول اكتساب المفردات، والبيانات النوعية من خلال استبيانات ومقابلات مع الطلاب حول آرائهم.أظهرت النتائج الإحصائية أن الطلاب الذين استخدموا تطبيقات الذكاء الاصطناعي لتعلم وفهم مفردات اللغة والمصطلحات العلمية قد حققوا مستوىً عالياً من الفهم والإدراك بلغ حوالي ٧٠٪. وأظهر التحليل النوعي أن الطلاب وجدوا تطبيقات الذكاء الاصطناعي "أكثر تفاعلية وتخصيصاً" مع النصوص العلمية للمعلم. أما المواد المنهجية الأدبية فقد بينت الدراسة ان نسبة تعامل تطبيقات وادوات الذكاء الاصطناعي لها هي ٣٠٪ وذلك يعود الى اختلاف وطبيعة النصوص والمواد الادبية وخصائصها فلم يتم التعامل معها بكفاءة بواسطة أدوات الذكاء الاصطناعي. وبلغ متوسط معدل الفهم في المجموعة التي مارست الأساليب التقليدية لتدريس المواد والنصوص الأدبية ٧٠٪. بالإضافة إلى ذلك، يمكن أن تكون تطبيقات الذكاء الاصطناعي بمثابة إضافة ممتازة لأساليب تدريس اللغة الإنجليزية كلغة أجنبية التقليدية في المواد العلمية لاكتساب المفردات

وتحفيز الطلاب في النموذج التربوي لتعلم اللغة الانكليزية في المناهج الجامعية والدراسات الاولية.وتوصي هذه الدراسة إلى أنه ينبغي إدخال بيانات الثقافة الأدبية أو الكلمات في نماذج لغة الذكاء الاصطناعي بدقة أكبر وبشكل اوسع، ويجب أن تكون هذه النماذج بارعة في التعامل مع اللغة الأدبية المستخدمة في المقررات الجامعية.الكلمات المفتاحية: الذكاء الاصطناعي في التدريس، طريقة التدريس التقليدية، فاعلية وإدراك الطلبة، المنهج الدلالي.

Introduction

There are many new forms of learning available today, and the uncontrolled use of technology has changed access to education significantly, particularly in language acquisition. EFL instruction for years has rooted itself to old methods, such as those based on grammar translation and a teacher-based model; however, the introduction of AI is changing these concepts. The problem of teaching the English language is overt in Iraq, a country where English has become one of the most popular languages of learning and earning oneself a livelihood. However, the main trends seem to be those of focusing the content and multidimensional organization in a physically oriented space for learning for EFL-learning undergraduates (UGLE) who typically have difficulty developing communicative competence and intrinsic motivation.All of these days are gone with the advent of new, highly advanced and yet user friendly language AI apps which bring increased level of personalization, interaction and excitement. These tools offer immediate responses in responsive applications, individualized learning profiles and the feel of it being more like “practice” than a classroom. However, little is known about their capacity as one of the formal education approaches in Iraq, for example. This efficiency needs to be taken beyond anecdote and attempts made to quantify it, and even more fundamentally a view from the student's perspective. This research is an attempt to fill this gap by introducing two mediators to learn second language, the traditional way and AI apps in secondary school education (SSE) in Iraq while focusing on a significative key part of the word learning as well.

The Problem of the Study

Despite the mandatory inclusion of the under graduation learning English (UGLE) curriculum, they often demonstrate low proficiency levels, particularly in active vocabulary use in semantics perspective and comprehension. Traditional teacher-centered methods, characterized by limited student interaction and a focus on grammatical accuracy over communicative fluency, may contribute to low motivation and high anxiety. While AI applications are globally recognized for their potential to address these very issues, their efficacy and reception within the specific socio-cultural and educational context of Iraq remain largely unexplored.

The main issue this study looks at is the "insufficient real-world data on how well AI-assisted instruction works compared to traditional methods for teaching English vocabulary in Iraqi high schools." In both scientific and literary texts, the absence of such research means that educational policymakers and practitioners lack the evidence needed to make informed decisions about integrating technology into the national curriculum.

The Objectives of the Study

The primary aim of this study is to conduct a comparative analysis of the efficiency and student perceptions of traditional EFL teaching methods and AI-powered applications in under graduation learning English UG LE.

This aim is operationalized through the following specific objectives:

١- To measure and compare the improvement in vocabulary acquisition between a group of students using traditional methods and a group supplementing their learning with an AI app.

٢- To analyze the perceptions of (UGLE) regarding the engagement, usability, and perceived effectiveness of both traditional methods and the AI app.

٣- To investigate the correlation between the use of the AI app and students' self-reported understanding and vocabulary retention.

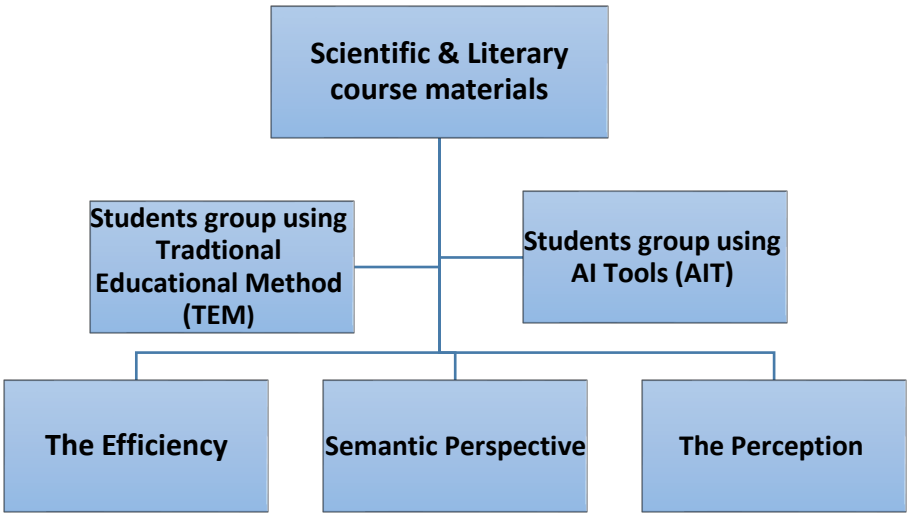
٤- To provide evidence-based recommendations for the potential integration of AI tools into the Iraqi EFL curriculum.

Data Collection and Procedure

A mixed-way approach was employed to gather quantitative and qualitative data , providing a comprehensive understanding of efficiency and perception of understanding the texts as follows :

1- Selecting samples of scientific course materials taken from (*Bio- Physic*) of third The Physic department and having them analyzed by students group using AI tools (AIT), followed by a comparison of their outcomes with those of students who rely on traditional educational methods (TEM) for study and comprehension. And checking the degree of the efficiency and perception of understanding both texts.

2- Select samples of literature course materials taken from *(Drama)* of the third English department for students to analyses using AI tools. We will then compare their results to those of students who use traditional educational methods (TEM) for study and understanding, while also assessing the level of comprehension of both groups. Additionally, we will assess the level of efficiency and perceived understanding of both texts.
3- 3-Testing the efficiency and understanding of the texts and vocabulary according to the semantic perspective. See diagram No (1)



The Diagram No (1)

2.0 Theoretical Part:

The following are the two main theoretical frameworks on which this study is based:

-Constructivist Learning Theory: This theory, often attributed to thinkers such as Piaget and Vygotsky, contends that learners are constantly constructing knowledge for themselves via experience and interaction with the world. Conventional, teacher-oriented system usually immobilizes the student into a mere recipient of information. This is the place where AI apps fit with constructivist approaches as they offer an interactive environment that enables students to discover rules, learn from their errors through immediate feedback and develop their linguistic competence by means of task-based exercises and exploration.The Affective Filter: One of the components in Krashen's Monitor Model, this refers to emotional factors (anxiety, boredom and lack of self-confidence among them) can block language learning. Traditional classrooms where errors are corrected and that require performance in front of others can add strength to this affective filter. AI-based apps might decrease it by providing a private and non-threatening context to practice. Being free from peer criticism, learners can also practice the language without being afraid of making mistakes which in turn contributes to effective language learning – an issue that this study seeks to explore via perception.

2.1 Lexical semantics in language instruction:

Lexical semantics (i.e., word meaning and word × word relationships) provides a robust source of information for vocabulary instruction. The traditional vocabulary teaching method often puts words out of context, with emphasis on rote memorization and dictionary definitions. Lexical semantics, however, focuses on the meanings expressed by words as they relate to one another (e.g., synonymy - same meaning; antonymy – opposite meanings; hyponymy – superordinate and subordinate), and polysemy (i.e., a word having several related meanings) (Murphy, 2010).Used in vocabulary instruction, lexical semantics enables learners to acquire more than the definitions of words but their contextual meanings, usage and relationship with others words at the same time. For instance, even exhibiting the word "run" in isolation offers scarce understanding of this relatively complex word. Unlike the direct reading instruction provided by word-level meaning, reading “run” in association with physical activity, machine operation and political candidacy (polysemy) affords students a more diffuse understanding of it. In so doing, educators can prompt students to consider the full semantic spectrum of a word (and thus appreciate its increased utility regarding comprehension and expression). learning environments, so teachers must take over the actual work of arguing more complex interpretations which is time consuming and difficult. Additionally, not all learners may find it so easy to understand these relations, especially at low levels of proficiency in which learning basic definition words are still difficult. Therefore, teachers need to strike a balance of simplifying vocabulary for the first learning step and adding more complexly systematic semantic relationships (for more advanced level) (Schmitt, 2010).

2.2 Traditional Methods of Teaching and Their Limitations Vocabulary

The approaches of teaching vocabulary in the past have centered on the methods of memorization, word lists, and dictionary definitions. Such approaches tend to use isolated words where the learners are taught new vocabulary terms without necessarily putting them in a given context. Although, learning vocabulary through rote memorization can be effective in the short run, studies have shown that this strategy is rather dismal in promoting meaningful learning or retention of vocabulary in the end (Schmitt, 2010). For instance, Ellis (1995) observes that learners subjects who studied new words in related sets performed significantly better than those in the control group who were trained without thematic contexts. Furthermore, the inclusion of semantic mapping, which can be relatively defined as visually depicting words in relation to each other, allowed learners to establish linkages between the words thereby enabling their understanding and recall. From these investigations, it is clear that with and the right context provided, learners will be able to assimilate new words associated with one idea more efficiently. (ibid).

2.3 Student Perceptions of Different Vocabulary Learning Strategies

It is important to comprehend how the students view various vocabulary learning devices to provide an efficient mode of instruction. Several researches indicated that students tend to favor vocabulary learning strategies which are interactive, context-based and meaning-oriented rather than based only on memorization or decontextualized word-lists. (Gu & Johnson, 1996) explain how pupils are aware of the shortcomings of conventional learning activities and yearn for methods which enable them to develop a fuller understanding of words.Lawson & Hogben (1996), pupils preferred to have work where they had the opportunity to apply their new vocabulary meaningfully through sentences or group talk. This is in contrast to the low engagement indicated for fetch and carry tasks that were perceived as being boring, unmemorable and ineffective in support of long term retention. These results indicate that learners find vocabulary instruction focused on active application and contextualization beneficial, which corresponds to contemporary theories of cognitive processing and memory.

2.3 AI Technology and Classroom Application

Opry,(2022) states that artificial intelligence (AI) technology refers to the ability of computers to perform tasks such as learning, problem-solving and decision-making, which typically require human intelligence. AI is very crucial tool in education means. is a hot topic in education, and teaching companies have been investing heavily in AI products. There are two AI apps that EFL teachers could also use in their classrooms: Duolingo (https://www.duolingo.com) which focuses on vocabulary and phrases in the target language and provides more grammar practice, and Lingvist (https://apps.apple.com/us/app/lingvist), which is adopted for grammar, vocabulary and pronunciation lessons. Students are also awarded points for finishing a lesson, which can incentivize learning. Lingvist is a language learning tool with classes in several languages including English. In order to customize the learning process for individual users, the platform uses proprietary artificial intelligence and machine learning algorithms. In the Lingvist classes, vocabulary and grammar are taught in context, and practical language skills will be trained. The app uses spaced repetition to help you memorize new words and reading and listening exercises to reinforce what you've already learned. Lingvist also uses machine learning and AI to offer personalized learning for each user. This can be helpful to allow students to move at their own pace and work on areas that need the most improvement. Additionally, spaced repetition model as employed by Linguist could also assist an English language learner in the better remembrance of new words. This may result in a better long term retention of the newly learnt vocabulary, and more successful language learning. That said, as an ancillary tool to other language learning methods, Lingvist can certainly be helpful.(Fitria, 2021) Duolingo is a popular language learning platform offering a range of classes in multiple languages. It uses a game-based learning system, hence it's fun to use. The courses' classes include several areas of the language such as grammar, vocabulary and pronunciation." They earn points and collect badges as they complete lessons and progress through the course. Duolingo has transformed English education in a myriad of ways, but one dominant way is by making English more accessible to people all over the world. It is free and online, so easy to get to for anyone connected to the internet. In addition, Duolingo entices students to continue developing their English proficiency through the use of prizes and progress tracking. By and large, Duolingo has been effective in teaching English as a second language. Although not a substitution for formal learning, for English learners that want to practice their skills it could be useful.

2.4 Data table Analysis:

The data table shows the analysis of the simple texts according to the semantic approach, efficiency, and perception of understanding them by adopting AI tools and traditional educational

f Samples	ic approach		cy & perception	
ic Sample Text				
Atmospheric Layers: is a non- homogeneous mass. It consists of layers which are each other over. These layers determined by their gas depending on their temperature and pressure .these change according to their height from the surface of the earth. There are five important layers in the atmosphere which are: - troposphere, stratosphere, mesosphere thermosphere and exosphere.	**70%**	**30%**	**70%**	**30%**
Literary Sample Text	**(AI T)**	**(TEM)**	**(AI T)**	**(TEM)**
Oliver …. Wilt thou lay hands on me, villain? Now will I stir this gamester? I hope I shall see an end of him, for my soul, yet …… I know not why hates nothing more than be... He is gentle, never schooled and yet learned……	**30%**	**70%**	**30%**	**70%**

Table No (1)

Data Discussion:

The findings indicate clear differences in students' comprehension and perception of the types of instructional texts used in scientific subjects across educational institutions, including schools, institutes, and universities. This variation in understanding is influenced by the nature of the text itself (e.g., scientific versus literary texts) as well as by the learning methods adopted by students.The study samples in the table above, present an analysis that if AI tools are used to analyze the same scientific texts within comprehension and understanding of meanings and terminologies. AI-powered tools for scientific texts and materials could generate more lucid explanations from them, with the level of system performance around 70% in terms of understanding, clarifying and dealing with scientific terminology. The findings also highlight that AI tools are the most effective means to help students recognize and use scientific vocabulary in academic texts. In comparison, the performance of students who go traditional in learning science related materials or text is low, attaining a level of 30% cognition and understanding. This is mainly due to legacy methods that are not fast and effective in analyzing or understanding science literature.The findings demonstrate the stark contrast between students' reading comprehension with instructional texts, which can be attributed to not only text type (scientific vs. literary) but also the teaching method (AI assisted learning or traditional). Although artificial intelligence has proved effective in the treatment of structured and technical discourses, its application to literature reveals significant limitations.The study analysis of leveraging AI to decipher literary texts yielded much lower comprehension and vocabulary knowledge (30% effectiveness). This result underlines a disconnection between the analyzing abilities of AI technologies and the nature of literary discourse. Literary writings are full of complex symbols, coded references, figurative expressions and fictional portrayals that make them demanding subjects for interpretive, contextual and affective engagement. Such features are challenging for algorithms to address and impacts the ability of AI tools to give unambiguous meanings or help a user comprehend vocabulary.However, students who are taught using non-traditional approaches to literary genres (drama, poetry, novel), demonstrate strong comprehension with an average difference of 70% effectiveness. This relative advantage is due to traditional methods being able to ground meaning in the lived experience, cultural referents and interpretative dialogue. Literary language, in its expressive flexibility and emotional resonance, does not need to strive for the clarity of scientific discourse. So conventional practices of pedagogy at their best make very complex meanings in a word bearable to think about.From a comparative viewpoint, the results of these studies suggest

that if AI tools can accelerate certain tasks in fields defined by formalized and explicit meanings, they are less equipped to tackle questions arising from the interpretive complexity and cultural specificieties of literary texts than humans are. As a result, traditional teaching methods are currently better at teaching literary materials because they consider the context, especially when it comes to figurative language, rhetorical devices, and meanings tied to culture.

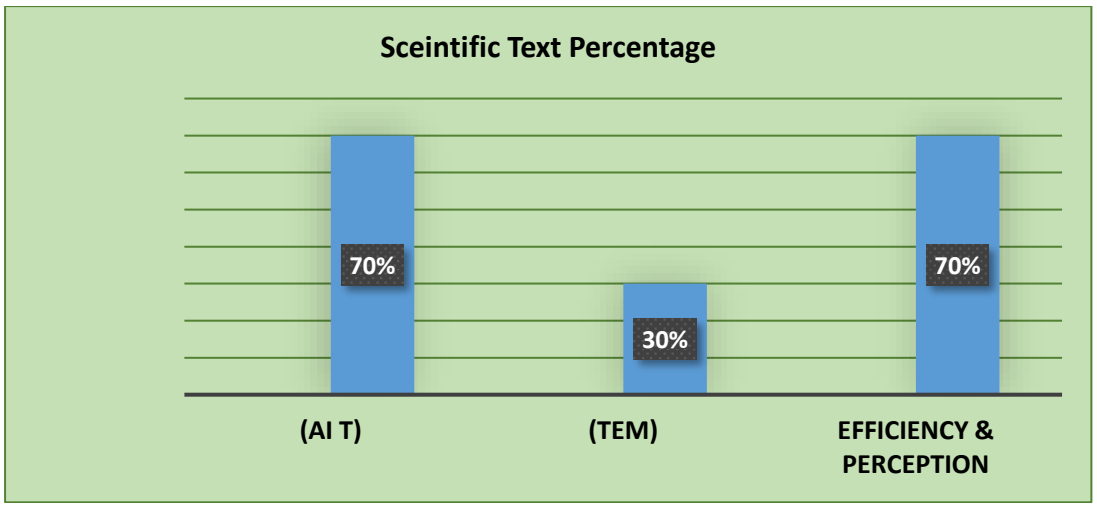


Chart No. (1) Shows using AI tools in scientific subject and texts.

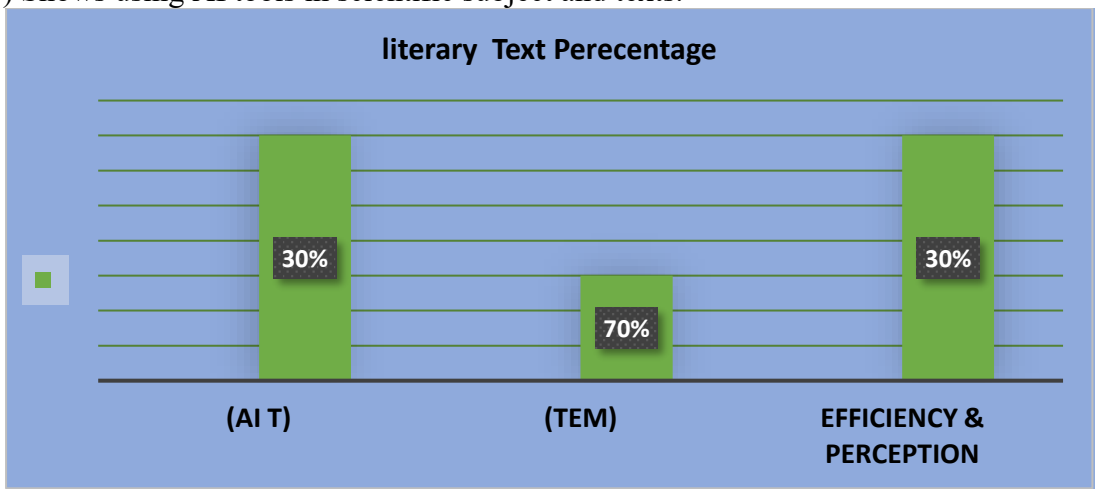


Chart No. (2) Shows using AI tools in literary subject and texts.

The conclusion and recommendations:

The study of the research paper conclude that:

1. The study shows during the analyzed samples that the students who adopted AI tools in scientific subject and texts are more understandable in efficiency and perception in percentage of 70% .Meanwhile, students who use traditional educational methods to approach scientific tests and subjects are 30% less efficient at understanding these text materials.

2.The students who adopted traditional educational methods in literary texts were more efficient and perceptive by 70% compared to those who used AI tools for analyzing the literary test subjects, because literary language has a special and unique style that is full of figurative language.

3.From a semantic perspective, the artificial intelligence tools used in teaching and study are closer to scientific texts, since scientific texts tend to use literal (dictionary) meaning. In other words, scientific texts tend to use language and translation in a semi-literal way more than literary texts do, whereas literary texts are rich in symbolic elements and employ rhetorical images. As shown in charts bellow.

4.It is necessary to input literary and cultural data, as well as vocabulary, into the AI tool more accurately in order to effectively handle the literary language used in university courses.

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