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# The degree of English language teachers' utilization of artificial intelligence applications in language teaching at the secondary stage.

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## Abstract:

This research aimed to identify the degree to which secondary school English teachers in Syria employ artificial intelligence applications, and to uncover differences in use based on the following variables: gender, academic qualifications, years of experience, and training courses. The research used a descriptive-analytical approach. A questionnaire covering five teaching areas (planning, implementation, evaluation, communication with students, and barriers to employing AI in teaching) was administered to a sample of 87 male and female teachers. The results showed that the level of usage was moderate, and statistically significant differences were found attributable to the variables of academic qualifications and years of experience. However, no statistically significant differences were recorded attributable to gender and training variables. Based on the results, several recommendations were made, including the need to train teachers on the use of artificial intelligence applications, providing a supportive and technically equipped school environment, and conducting subsequent studies on the effectiveness of artificial intelligence in developing language skills.

**Key Words:** Artificial Intelligence, English, Secondary School, Teachers.

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# درجة توظيف مدرسي اللغة الإنجليزية لتطبيقات الذكاء الاصطناعي في تدريس اللغة في المرحلة الثانوية

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**الملخص:**

هدف هذا البحث إلى التعرّف إلى درجة توظيف مدرسي اللغة الإنجليزية في المرحلة الثانوية في سورية لتطبيقات الذكاء الاصطناعي، والكشف عن الفروق في الاستخدام تبعاً لمتغيرات: الجنس، المؤهل العلمي، سنوات الخبرة، والخضوع لدورات تدريبية. استخدم البحث المنهج الوصفي التحليلي، وتم تطبيق استبانة ضمت خمس مجالات في التدريس (التخطيط، التنفيذ، التقويم، التواصل مع الطلاب، وعوائق توظيف AI في التدريس)على عينة مكونة من **87** معلماً ومعلمة. أظهرت النتائج أن درجة الاستخدام كانت متوسطة، كما كشفت عن وجود فروق ذات دلالة إحصائية تعزى لمتغيري المؤهل العلمي وسنوات الخبرة، بينما لم تُسجل فروق دالة إحصائياً تعزى لمتغيري الجنس والتدريب. وبناءً على النتائج، قُدمت بعض المقترحات، كضرورة تدريب المعلمين على توظيف تطبيقات الذكاء الاصطناعي، وتوفير بيئة مدرسية داعمة ومجهزة تقنياً، بالإضافة إلى إجراء دراسات لاحقة حول فاعلية الذكاء الاصطناعي في تنمية مهارات اللغة.

**الكلمات المفتاحية:** الذكاء الاصطناعي، اللغة الإنجليزية، المرحلة الثانوية، المدرسون.

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## Introduction:

The recent decades have experienced unparalleled and accelerated technological progress, transforming many fields, including education. The proliferation of digital tools, the internet, and smart technologies has dramatically transformed the method of planning, delivery, and evaluation of education. One of the most disproportionate recent innovations in the learning context, and arguably one that has significantly influenced this technological revolution, is the development of artificial intelligence.

"(AI), standing for the simulation of human intelligence activities by computers (Poole et al., 1998, p. 23)",it enables personalized learning, intelligent tutoring systems, automated tests, and instant feedback, thus "enabling teaching and learning more effectively: (Holmes et al., 2019, p. 15). Especially in English as a Foreign Language (EFL) instruction in the Syrian curriculum, AI technologies—speech recognition programs, grammar checkers, language learning systems, and artificial intelligence-based chatbots—may assist teachers to craft innovative and attractive lesson plans, monitor learning requirements, and intervene early to facilitate learners' language ability (Kukulska-Hulme, 2020, p. 4). Numerous studies reported that it was challenging to teach English in Syria.

Ali (2016) and Mohammad (2024) explained that the English curriculum tended to be challenging to learn and did not suit the level of students' academic proficiency, i.e., possessing inadequate speaking and writing ability. Abdullah (2025, p. 13) also demonstrated that curricula that prioritize lower-order cognitive skills result in traditional teaching, and therefore affect learners' language learning. Empirical data reveal that AI tools have the ability to facilitate interactive and personalized learning, provide immediate feedback, and enhance lesson planning (Chen et al., 2020; Feng & Yang, 2022; Tuomi, 2018; Jiang, 2022). Despite this, there is still limited research study on the application of AI tools among Syrian secondary school English teachers.

## 2. Research Problem:

Teaching the English language in Syria is hindered by a number of issues. The majority of learners are struggled with effective communication, at least to some degree, due to poor professional development and poor training of the language teachers in sophisticated technological methods of teaching (Al-Issa, 2020). Teachers use their own experience rather than an objective measure for designing actual language competence (Reddit Contributors, 2024).

Furthermore, the education sector deals with congested curricula, overcrowded classrooms, exceptional conditions such as conflict, displacement, and health crises, and inadequate classroom facilities (Kheder, 2025). In these conditions, artificial intelligence (AI) offers real-world solutions in the context of generating lesson plans, communication and interaction with the students, designing effective tests, instant feedback, organization of the learning materials, and the adjustment of instruction to learner needs (Vieriu & Petrea, 2025).

Several research studies have revealed advantages of employing AI in education like inspiring students, improving learning performance, and simplifying teachers' workloads. AI applications have also been found effective in supplementing teaching English as a second language. Intelligent writing software, computer-led

pronunciation suggestions, and adaptive vocabulary software are a few tools that provide real-world assistance to effective English language teaching (Cui & Zhang, 2025; Tan et al., 2024; Boudouaia et al., 2024). However, the degree to which Syrian secondary school instructors use such apps remains unknown.

In order to investigate this, the researcher conducted a pilot study of 30 English teachers with varying experience in teaching and computer literacy. Ten expert-instructed questions were directed at teachers' acquaintance with AI in instruction, current application of AI applications in teaching English, perceived benefit, obstacles to AI application, and training needs. The survey also revealed that 70% of teachers were familiar with AI tools, yet 30% of them had actively utilized them. Automated grammar checkers and mobile vocabulary apps were the most widely used tools. Reducing time expenditure and stimulating students more were the major reasons of teachers' utilization of these tools, followed by reasons of insufficient training, poor internet, and poor support from the institution.

The results represent the urgency to research the use of AI tools in teaching English in Syrian secondary schools comprehensively. So, the research problem can be defined by the following question: (**to what degree do English language teachers use artificial intelligence applications in teaching English at the secondary level**).

## 3- Research Questions:

**The Main Research Question:**

• To what degree do English language teachers use artificial intelligence applications in teaching English at the secondary level ?

Sub-questions:

3-1 To what degree do English language teachers use artificial intelligence applications in lesson planning?

3-2 To what degree do English language teachers use artificial intelligence applications in lesson implementation?

3-3 To what degree do English language teachers use artificial intelligence applications in lesson evaluation?

3-4 To what degree do English language teachers use artificial intelligence applications in communication with students?

3-5 What are the obstacles of using artificial intelligence applications in English language teaching?

## 4- Research Hypotheses:

The research hypotheses were tested at a significance level of $\alpha \leq 0.05$.

- There were no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the gender variable.
- There were no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the academic qualification variable.
- There were no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the variable of years of experience.

- There were no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the variable of training courses.

## 5- Research Objectives:

**This research aims to achieve the following:**

5-1 determining the degree to which secondary school English teachers in Syria use artificial intelligence applications in teaching.

5-2 analyzing the impact of demographic characteristics (gender, years of teaching experience, academic qualification, and attendance of AI training courses) on the use of artificial intelligence tools.

## 6- Significance of the Study:

**The significance of the study stems from the following points:**

6-1 addressing a recent and emerging educational trend—the integration of artificial intelligence—in the context of Syrian secondary schools.

6-2 highlighting the potential of artificial intelligence tools in assisting English language teachers in dealing with constraints such as overburdened curricula, crowded classrooms, and limited resources.

6-3 The research may provide information to policymakers and curriculum developers about the current state of artificial intelligence adoption and how to facilitate its effective integration.

6-4 It helps alert English language teachers to the need to conduct training courses on the use of artificial intelligence applications in the educational process.

## 7- Research Variables:

**7-1 Independent Variables:**

- Gender (male - female)

7-2 Years of teaching experience (less than 5 years - 5 to 10 years - more than 10 years)

- Academic qualification (bachelor's degree – educational qualification diploma - master's degree or higher)
- Attendance of AI training courses.

**7-2 Dependent Variable:**

- Level of use of AI applications in English language teaching

**8- Research Limitations:**

8-1 The research is limited to English language teachers working in secondary schools in Syria (Damascus city and its countryside) during the 2024-2025 academic year.

8-2 The research is limited to the sole implementation of AI tools in only five areas of teaching: (planning, implementation, evaluation, communication and interaction with students, and obstacles of using AI).

8-3 The study relies on teachers' self-reports collected through a systematic questionnaire.

8-4 The results are applicable to the specific sample discussed and are not applicable to all educational institutions in Syria.

## 9- Research Terms and Operational Definitions:

### 9-1 Artificial Intelligence (AI):

AI is "a branch of computer science". Various computer programs rely on its behavior and characteristics to match human mental and intellectual abilities in various tasks, most notably the machine's ability to learn and make sound decisions. AI acquires information through practical experience" (Mohammed et al. 2021.6).

It is also defined as "the simulation of human thought processes by machines, especially computer programs, which include learning, thinking, and self-improvement" (Poole, Mackworth, & Goebel, 1998).

It is defined procedurally as the technological programs and applications used by the secondary school English teachers to plan, implement, and evaluate lessons, as well as to communicate with students. Its use is measured through a questionnaire directed to teachers.

**9-2 Teaching**: "It is a practice undertaken by the teacher to facilitate the learning process by transferring knowledge, skills, and attitudes to learners within a framework of structured interaction, guidance, and feedback within the educational environment" (Friesen, N & Su, h. 2023.12).

It is defined procedurally as: the set of procedures undertaken by the English language teacher to plan, implement, and evaluate a lesson. This is done through the curriculum prepared for teaching at the secondary level.

**9-3 English language teacher**: A teacher who holds a degree in English and teaches it to secondary school students. Through their work, they aim to develop learners' language skills in listening, speaking, reading and writing.

## 10- Theoretical Framework:

### 10-1 Definition of Artificial Intelligence (AI):

Artificial intelligence (AI) refers to computer science dedicated to solving cognitive problems typically associated with human intelligence, such as learning, creativity, and image recognition. Modern organizations collect vast amounts of data from diverse sources such as smart sensors, human-generated content, monitoring tools, and system logs. The goal of AI is to create self-learning systems that extract meaning from data. AI can then apply that knowledge to solve novel problems in human-like ways. For example, AI technology can respond meaningfully to human conversations, generate authentic images and text, and make decisions based on real-time data inputs (Lotfi &El Bouhadi, 2021,4).

AI can also be described as the ability of machines to perform activities that require human intelligence, including problem-solving, learning, language comprehension, and decision-making (Poole, Mackworth, & Goebel, 1998). In education, AI systems simulate cognitive processes to assist in teaching, learning, and assessment, adapting to individual learner needs (Holmes, Bialik, & Fadel, 2019).

From the researcher's perspective, understanding AI as a cognitive simulator aligns with the pedagogical aspirations of language teaching, particularly when addressing the unique needs of students in multicultural classrooms. The term "artificial intelligence" was first used by John McCarthy in 1956 at the Dartmouth Conference. This was the beginning of artificial intelligence (Russell and Norvig, 2022.26). In the 1990s and early 21 st century, AI achieved greater success, being used in logistics, data mining, medical diagnosis, and many other areas across the technology industry due to the significant development of computers and the advancement of intelligence in psychology.

In the 21st century, AI research has become highly specialized and technical. Since 2011, the most significant development in the field of AI has been through applications that have appeared in various areas of life. The concept of deep neural networks, robotics, natural language processing, virtual learning, augmented reality, and other AI-based applications have emerged. Development continues to this day, with complex machine learning and deep learning models supported by available computing power and big data, leading to significant improvements in language understanding, image recognition, and data analysis. Although AI has advanced globally with decades of technological advancements, its effective application in Syrian secondary education is still in its infancy, necessitating local research and gradual adoption.

## 10-2 Applications of Artificial Intelligence in Education:

**AI has revolutionized teaching practices through several tools:**

* Intelligent Tutoring Systems (ITS): Adaptive systems that tailor learning experiences (Woolf, 2010.54).
* Automated Assessment: Software such as automated essay grading provides rapid and standardized feedback (Burstein et al., 2013).
* Learning Analytics: AI tracks performance and identifies struggling learners (Ifenthaler & Yau, 2020).
* Adaptive Platforms: AI adapts content delivery to meet learner needs (Luckin et al., 2016).
* Virtual Assistants and Chatbots: Projects such as chatbots support questions and simulate learning dialogues (Chen, Chen, & Lin, 2020).

These technologies have great potential as tools to address educational issues, such as large class sizes, imbalanced educational provision, and teacher shortages.

### 10-3 Artificial Intelligence Applications in English Language Teaching (ELT):

Teaching English is of great importance in most countries around the world, as it is the first language used globally. A study by Maroof ( 2020.33) showed that motivation to learn English and develop its skills among learners is high. Therefore, it is necessary to explore new and modern technologies that aid in teaching and enable learners to interact with it easily. Various AI applications in language teaching have emerged as one solution to this problem, as AI applications all aim to enhance learner's interaction and linguistic proficiency. This shift is in line with the broader trend toward digitization in education, as AI enables learning experiences and provides resources specifically designed to meet students' individual needs (Sajja et al., 2024).

**AI helps teachers and students with:**

*Language learning applications: Duolingo and Elsa Speak offer adaptive and engaging language practice (Kukulska-Hulme, 2020).

*Writing Assistants: Programs like Grammarly provide instant feedback on grammar and coherence.

*Pronunciation Coaches: Speech analysis programs allow learners to improve their pronunciation skills (ELSA, Google Speech).

*Virtual Tutors/Chat bots: Simulate real-life conversation practice.

*Vocabulary Teaching Systems: Programs that track abilities and adjust practice accordingly.

The researcher believes that the application of artificial intelligence in English language teaching can bridge the gap in student engagement and language ability.

**10-4 Future Directions of Artificial Intelligence in Language Learning:**

The future of artificial intelligence in language learning is all about the creation of -personalized and immersive learning experiences.

-Techs such as augmented reality (AR), virtual reality (VR), and advanced machine learning allow learners to engage in practice language use in real contexts and receive personalized feedback on pronunciation, grammar, and fluency.

-AI-based recommendation systems can guide students to rightful content, and intelligent chatbots simulate human speech, enhancing communicative competence.

- Effective integration of these trends requires teacher training, adequate infrastructure, and ethical considerations, so that AI complements rather than replaces human pedagogy (Sajja *et al*., 2024; Luckin et al., 2016; Chen et al., 2020).

**10-5 Barriers to the Use of Artificial Intelligence by Language Teachers:**

Despite the benefits, there are several obstacles preventing English as a Foreign Language teachers from adopting AI:

* Lack of infrastructure: These include slow internet access, poor environments, electricity problems, and the scarcity of smart devices.
* Lack of training: A large majority of teachers (up to 76% in some studies) reported not receiving any professional training inAI ( Alenezi, 2023,28).
* The biggest challenge is the traditional view of the educational process by teachers, administrators, and parents, and the difficulty of abandoning the existing teaching model (Cukurova et al. 2023).
* The trend is based on complete reliance on smart applications to replace teachers, thus stifling creativity and innovation in the educational process for both teachers and students.
* The lack of qualified personnel to use AI technologies and applications, which reduce the benefits of these applications in education. (www.rand.org.10)
* Ethical concerns related to the inability of machines to simulate the emotional and moral aspects of humans, which leads to the creation of a generation devoid of human emotions and insensitive to human emotions. This is in addition to cases of data theft and privacy intrusion through hacking programs. (Bishara et al. 2025)
* Educational and cultural compatibility: Western assumptions about AI tools may not be compatible with local curricula.
* Workload and time pressure: Teachers are concerned about the additional time required to learn and integrate AI. (Filiz et al. 2025)

Artificial intelligence has opened up broad horizons for language teaching through the various applications and programs launched and developed daily by technology companies. Providing qualifications and training for English language teachers on how to employ these applications and invest in the teaching-learning process is one of the biggest challenges facing the educational program developers, especially in Syria, after all the events it has experienced.

## 11- Research Procedures:

### 11-1 Research Methodology:

The descriptive analytical approach is used. " The Descriptive research aims to systematically describe characteristics of a phenomenon or a population without manipulating variables (McCombes, 2023).

**Research Sample**: The study population consists of all secondary school English language teachers in Damascus, totaling approximately (444) female and male teachers. A sample of 87 teachers was selected using the random sampling method, ensuring that each teacher had an equal chance of being chosen. The sample is approximately 20% of the population, which is sufficient to provide reliable and generalizable results. The sample was further categorized according to the study variables: gender, academic qualification, years of teaching experience, and prior participation in training courses on artificial intelligence. Table (1) illustrates the research sample distribution according to the study variables

**Table 1**.

*the research sample distribution according to the study variables*

| **Variable** | **Gender** | | **academic qualification** | | | **Experience** | | | **training** | |
|---|---|---|---|---|---|---|---|---|---|---|
| Categories | **Males** | **females** | Bachelor's | Diploma | Master's or higher | less than 5 | 5–10 | more than 10 | **Yes** | **No** |
| **Frequency (n)** | **24** | **63** | **37** | **37** | **13** | **26** | **24** | **37** | **20** | **67** |
| **Percentage %** | **27,58** | **72.41** | **42.52** | **42.52** | **14.94** | **29.88** | **27,58** | **42.52** | **22.98** | **77.01** |

### 11-2 Instrument Design:

To respond to the research questions and identify the degree to which English language teachers utilize artificial intelligence (AI) applications in teaching, a systematic questionnaire was developed through the following steps:

* First, the instrument's aim was set to explore teachers' perceptions on the degree of AI integration in English language teaching.
* Secondly, a thorough review of theoretical literature and research available on AI in education, specifically on English language instruction, was conducted to inform the content such as (An et al. 2022; Elmergib & Alburki .2024; Guo, Shi, & Zhai. 2024; Pettersson et al. 2024 ;Mohamed. 2024)
* Based on designated teaching areas, the survey was structured into five broad sections: lesson planning (10), using AI to teach English lessons (10), using AI in lesson assessment (10 items), using AI in communicating with students (10 items), barriers of using AI to teach English (10), and one open-ended question was also included to allow respondents to provide more details and suggestions.
* Scoring was done using a five-point Likert scale:
  (1) Strongly Disagree ,(2) Disagree, (3) Neutral, (4) Agree, (5) Strongly Agree.

## ❖ Validity and Reliability of the Instrument:

### 1.Content Validity:

To ensure content validity, the questionnaire was submitted to group of refrees eight experts in the fields of English language teaching, instructional technology, and curriculum and instruction. The referees reviewed the items for relevance, clarity, and suitability for use. Minor adjustments were made on the wording of some items by their recommendations in an effort to enhance clarity and specificity. The experts validated that the instrument was suitable for use in its final version.

**2. Internal Consistency Validity:** Pearson correlation coefficients were calculated between the score of each item in a domain and the overall score of that domain. Table (2) displays the correlation coefficients representing the strength of these relationships.

**Table 2:** ***correlation between domain items and the overall domain score***

| Item Number | Correlation Coefficient | Significance Level | Item Number | Correlation Coefficient | Significance Level | Item Number | Correlation Coefficient | Significance Level |
|---|---|---|---|---|---|---|---|---|
| 1 | .70 | 000 | 18 | .75 | 000 | 35 | .91 | 000 |
| 2 | .78 | 000 | 19 | .85 | 000 | 36 | .77 | 000 |
| 3 | .82 | 000 | 20 | .77 | 000 | 37 | .80 | 000 |
| 4 | .81 | 000 | 21 | .72 | 000 | 38 | .90 | 000 |
| 5 | .67 | 000 | 22 | .69 | 000 | 39 | .83 | 000 |
| 6 | .73 | 000 | 23 | .76 | 000 | 40 | .86 | 000 |
| 7 | .76 | 000 | 24 | .83 | 000 | 41 | .72 | 000 |
| 8 | .73 | 000 | 25 | .77 | 000 | 42 | .75 | 000 |
| 9 | .86 | 000 | 26 | .81 | 000 | 43 | .66 | 000 |
| 10 | .79 | 000 | 27 | .74 | 000 | 44 | .71 | 000 |
| 11 | .70 | 000 | 28 | .82 | 000 | 45 | .65 | 000 |
| 12 | .75 | 000 | 29 | .83 | 000 | 46 | .76 | 000 |
| 13 | .77 | 000 | 30 | .79 | 000 | 47 | .83 | 000 |
| 14 | .76 | 000 | 31 | .87 | 000 | 48 | .59 | 000 |
| 15 | .84 | 000 | 32 | .72 | 000 | 49 | .69 | 000 |
| 16 | .86 | 000 | 33 | .81 | 000 | 50 | .78 | 000 |
| 17 | .78 | 000 | 34 | .91 | 000 | | | |

It was also established the internal consistency within each area and the questionnaire's overall score, Table (3) presents the correlation coefficients.

**Table 3** ***The correlation of each domain with the overall questionnaire score.***

| Domain | Correlation Coefficient | Significance Level |
|---|---|---|
| Lesson Planning | .84 | 000 |
| Applying AI in Teaching | .92 | 000 |
| Lesson Assessment | .93 | 000 |
| Communicating | .89 | 000 |
| Barriers to Using AI | .71 | 000 |

It is evident from Table (2) that each question of the questionnaire is strongly correlated with its corresponding domain at the significance level ($\alpha \geq 0.01$), which reflects the internal consistency validity. In addition, Table (3) indicates that each domain of the questionnaire is also correlated significantly with the questionnaire total score at the same significance level

**3. Reliability:**

The reliability of the questionnaire was established by two methods

- Cronbach's Alpha coefficient was calculated, and its value for the entire questionnaire was up to (.94), which is good and indicates that the questionnaire is sufficient to be applied in scientific studies. Table (4) presents the reliability coefficients (Cronbach's Alpha) for each dimension and the entire questionnaire.

**Table 4.** ***The reliability coefficient matrix for the questionnaire domains according to Cronbach's Alpha formula***

| Domain | reliability coefficients |
|---|---|
| Lesson Planning | **.92** |
| Applying AI in Teaching | **.93** |
| Lesson Assessment | **.92** |
| Communicating | **.95** |
| Barriers to Using AI | **.98** |
| The total score of the questionnaire | **.94** |

- The Split-Half Method: The reliability coefficient was (.96) which is very high reliability and indicates that the questionnaire is suitable for use.

**4. Statistical Processing:**

The questionnaire scores, designed with the five-point Likert scale, were graded 1 to 5. Statistical analysis involved the use of the following methods for the purpose of analysis: arithmetic mean, standard deviation, percentage of means, Student's t-test, and one-way ANOVA.

Methods of the responses in the areas related to teaching English as a foreign language were deciphered via the following scale (High – Medium – Low), and scores totaled between 1 and 250 points based on the responses of English language teachers.

**12- Analysis and Discussion of Results:**

**12-1 Research Question**: "To what degree do English language teachers utilize artificial intelligence tools to teach English at the secondary level"

The questionnaire was answered on the basis of a five-point Likert scale, on which participants selected from the following statements: :(1) Strongly Disagree,(2) Disagree,(3) Neutral,(4) Agree,(5) Strongly Agree, these

options were used to determine the arithmetic means, standard deviations, and relative weights of the responses.

**The class interval was (5 – 1) ÷ 5 = 0.80, and the mean scores were interpreted as follows:**

- to 1.79: Very Low
- 1.80 to 2.59: Low
- 2.60 to 3.39: Medium
- 3.40 to 4.19: High
- 4.20 to 5.00: Very High

This scale allowed the researcher to classify the degree to which AI applications were employed in English language teaching based on teachers' responses. This classification is shown in Table (5)

**Table 5. Means and Standard Deviations of the Degree to Which English Language Teachers Use Artificial Intelligence Applications in Instruction at the Secondary Stage**

| Domain | Mean | Std. Deviation | Rank | Level |
|---|---|---|---|---|
| **Lesson Planning** | 3.37 | .889 | 1 | Medium |
| **Applying AI in Teaching** | 3.14 | .946 | 3 | Medium |
| **Lesson Assessment** | 3.04 | .916 | 4 | Medium |
| **Communicating** | 2.94 | 1.068 | 5 | Medium |
| **Barriers to Using AI** | 3.34 | .885 | 2 | Medium |
| **The total score of the questionnaire** | 3.16 | .812 | - | Medium |

The degree of the use of artificial intelligence tools by English language teachers is directly related to the era of intensive world technological growth, during which AI technologies have become an integral part of the modern pedagogical process in many countries. Responding to this global pattern, increasingly more instructors are adopting AI tools in lesson planning and delivery due to their potential in providing interactive learning, personalized content, and improved instructional outcomes (Holmes, Bialik, & Fadel, 2019; Luckin et al., 2016).

In the Syrian context, while the technology infrastructure is extremely poor, some teachers are independently inspired to innovate and apply AI in teaching. Their own efforts are based on an enthusiasm to remain competitive with global education practices and maximize instruction effectiveness. This agrees with the results of Chen et al. (2020), who emphasized that teacher motivation has the ability to drive AI usage even in conditions of resource scarcity.

In addition, Ifenthaler and Yau (2020) theorize that autonomous learning and individual exploration of AI tools may help overcome the lack of formal support and infrastructure, thereby enabling teachers to integrate AI in their practices despite pervasive difficulties. As such, the current research confirms that Syrian English teachers' incorporation of AI is motivated by global technological trends as well as personal initiatives by individual teachers, but not by school programs. This further suggests that there has to be supportive infrastructure and sustainable capacity-building programs to further facilitate AI to be implemented within Syrian schools.

Breaking down arithmetic operations revealed that the overall level of AI application in Syrian secondary English education is "moderate." Out of the five areas that were assessed, "Lesson Planning" was ranked first, followed by "Obstacles to AI Integration," "Lesson Implementation," "Assessment," and finally "Communication with Students."

The highest position of the "Lesson Planning" topic can be attributed to the advanced adoption of AI tools by educators at the planning stage. Such tools as grammar checking, machine translation, worksheet creation, and AI-assisted content generation are easily accessible and do not require institutional backing or cutting-edge technical infrastructure. Alzubi (2022) affirms this fact through a report of increased reliance of teachers on AI-based platforms for efficient lesson planning.

The runner-up category, "Barriers to AI Integration," reflects the prevalent challenges facing teachers. These include outdated or nonexistent digital infrastructure, unpredictable internet connectivity, insufficient devices offered by schools, and no training offered by the Ministry of Education. These findings are in line with the outcomes of Alenezi (2023), who indicated that technological limitations and readiness at the organizational level significantly hinder AI adoption in schools.

The "Lesson Implementation" category ranked the third place, and this is to be anticipated given the lack of classroom technologies. Even if teachers do implement AI tools during the planning process, they are constrained to make use of these tools while teaching in real-time by the lack of smart boards, projectors, or stable internet access. Krouska, Troussas, and Virvou (2021) confirm that the successful implementation of AI in class depends on a digitally supporting environment—one that falls short in Syrian secondary schools.

The fourth-highest-ranking category, "Assessment," shows that Syrian public-school assessment procedures remain largely traditional with little integration of AI-supported tools such as adaptive testing or automated commenting systems. Although some teachers may try online quizzes or plagiarism checkers, AI use in assessment is not widespread. Shodipe et al. (2023) observe that without structured training and clearly defined policies, the application of AI in educational
assessment will remain limited.

Finally, the lowest ranked domain, "Communication with Students," reflects the lowest level of utilization of AI-based communication tools such as chatbots or learning management systems (LMSs). Syria still depends on face-to-face communication or basic online messages between teachers and students, primarily because they are not familiar with intelligent communication platforms and do not possess the necessary technology infrastructure to support full utilization. Li, Yang, and Chen (2022) affirm that there is no successful implementation of conversational AI in teaching without the backing of institutions and digital readiness—circumstances yet to be typical in most Syrian secondary schools.

## 12-2 Verifying the research hypotheses:

**Hypothesis (1)**: "There were no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications for teaching the English language because of the gender variable". In this case, to test the hypothesis an independent samples t-test was conducted. This is explained in table (6).

**Table 6 : t-test Results of the differences in AI Application use in English Language Teaching according to the gender variable**

| Gender | Male | | Female | | Df | t | Sig | Decision |
|---|---|---|---|---|---|---|---|---|
| Sample | 24 | | 63 | | | | | |
| Domain | Mean | Std. Deviation | Mean | Std. Deviation | | | | |
| Lesson Planning | 3.45 | .635 | 3.33 | .946 | | .527 | .600 | Not sig |
| Applying AI in Teaching | 3.15 | .825 | 3.13 | .994 | 85 | .052 | .959 | Not sig |
| Lesson Assessment | 2.95 | .669 | 3.08 | .996 | | .556 | .580 | Not sig |
| Communicating | 2.7 | .874 | 3.03 | 1.126 | | 1.308 | .194 | Not sig |
| Barriers to Using AI | 3.49 | .655 | 3.28 | .957 | | .989 | .326 | Not sig |
| The total score | 3.15 | .550 | 3.17 | .895 | | .127 | .899 | Not sig |

Table (6) shows that the results of the t-test indicated that male and female English language teachers did not significantly differ in applying artificial intelligence tools in teaching. This is an indication that gender does not explain significantly the degree to which AI tools are applied in English language teaching among the sampl, secondary school teachers in Syria.

This result is in accordance with numerous previous studies. For instance, in the study of Alenezi (2023), the findings showed that there were no differences in teachers' attitudes or AI technology use in line with gender. Similarly, in the study by Çayak (2024), both male and female teachers reported equivalent levels of AI integration in lesson planning and teaching, indicating that training and access to resources had a larger effect than gender.

Further, Chatterjee and Bhattacharjee (2020) also confirmed that gender was also not a significant predictor of AI tool acceptance and adoption by educators, assigning them instead of individual motivation and comfort with technology as more accurate predictors.

Hence, it can be inferred that the same rate of AI usage among male and female instructors reflects an equal degree of perception and desire towards implementation in terms of technology irrespective of greater problems of infrastructure and support.

- **Hypothesis (2)** There were no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the academic qualification variable. To examine this hypothesis One-Way Anova test was conducted. Table (7) explain that.

Table 7. Results of One-Way ANOVA Test for the Differences in Mean Scores of English Language Teachers in utilizing AI Applications Based on Academic Qualification

| Domain | Source of variance | Df | Sum of Squares | Mean Squares | F | Sig |
|---|---|---|---|---|---|---|
| **Lesson Planning** | Between Groups | 2 | 4.521 | 2.261 | 3.135 | .048 |
| | Within Groups | 84 | 60.501 | .720 | | |
| | Total | 86 | 65.022 | | | |
| **Applying AI in Teaching** | Between Groups | 2 | 9.797 | 4.898 | 6.123 | .003 |
| | Within Groups | 84 | 67.194 | .800 | | |
| | Total | 86 | 76.991 | | | |
| **Lesson Assessment** | Between Groups | 2 | 3.195 | 1.597 | 1.944 | .149 |
| | Within Groups | 84 | 69.002 | .821 | | |
| | Total | 86 | 72.197 | | | |
| **Communicating** | Between Groups | 2 | 6.107 | 3.053 | 2.784 | .067 |
| | Within Groups | 84 | 92.129 | 1.097 | | |
| | Total | 86 | 98.236 | | | |
| **Barriers to Using AI** | Between Groups | 2 | 9.195 | 4.597 | 6.624 | .002 |
| | Within Groups | 84 | 58.299 | .694 | | |
| | Total | 86 | 67.494 | | | |
| **The total score of the questionnaire** | Between Groups | 2 | 5.532 | 2.766 | 4.539 | .013 |
| | Within Groups | 84 | 51.194 | .609 | | |
| | Total | 86 | 56.726 | | | |

Note:Statistically significant at $\alpha = 0.05$.

Table (7) further shows the presence of statistically significant differences on the basis of the academic qualification variable in applying AI applications within the domain of lesson planning and teaching, employment issues, and in the questionnaire in general in the case of master's degree holders. In the domain of assessment and student communication, there are no differences. These findings suggest that teachers' degree of academic exposure influences their adoption and implementation of AI tools in certain situations, that is, lesson planning and instruction, and in realizing barriers. These are in line with the findings of Alzubi (2022), who noted that higher levels of academic teaching are typically associated with more innovative methodologies of instruction, such as the use of AI. Similarly, Ifenthaler and Yau (2020) emphasized that educators with postgraduate certification will be more inclined to apply technology-supported teaching. To mark the statistically significant dimensional variations in the arithmetic means, Scheffe test was utilized in Table (8).

**Table 8. Scheffé Post Hoc Comparisons among Academic Qualification Groups of AI Application Domain**

| Domain | Comparison | Mean Difference (I–J) | Sig. | Significant? |
|---|---|---|---|---|
| **Lesson Implementation** | Bachelor's – Master's | −0.93389 | .007 | Yes |
| **Obstacles** | Bachelor's – Master's | −0.95946 | .003 | Yes |
| **Overall Average** | Bachelor's – Master's | −0.64067 | .044 | Yes |

The Scheffé post hoc test showed that teachers with a master's degree or higher scored significantly higher than those with only a bachelor's degree in the domains of Lesson Implementation, Obstacles to AI Use, and the Overall Average of AI utilization. This suggests that higher academic qualifications may equip teachers with better pedagogical and technological competencies to overcome challenges and integrate AI tools more effectively into their teaching. These findings align with those of Chen et al. (2020), who highlighted the role of advanced training in promoting effective AI integration in education.

- **Hypothesis (3)** There are no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the variable of years of experience. To examine the hypothesis One-Way Anova test was conducted. Table (9) explains that.

**Table 9. Results of One-Way ANOVA Test for the Differences in Mean Scores of English Language Teachers in utilizing AI Applications Based on years of experience**

| Domain | Source of variance | df | Sum of Squares | Mean Squares | F | Sig |
|---|---|---|---|---|---|---|
| **Lesson Planning** | Between Groups | 2 | 2.045 | 1.023 | 1.364 | .261 |
| | Within Groups | 84 | 62.977 | .750 | | |
| | Total | 86 | 65.022 | | | |
| **Applying AI in Teaching** | Between Groups | 2 | 5.369 | 2.684 | 3.148 | .048 |
| | Within Groups | 84 | 71.622 | .853 | | |
| | Total | 86 | 76.991 | | | |
| **Lesson Assessment** | Between Groups | 2 | 2.710 | 1.355 | 1.638 | .201 |
| | Within Groups | 84 | 69.487 | .827 | | |
| | Total | 86 | 72.991 | | | |
| **Communicating** | Between Groups | 2 | 4.009 | 2.005 | 1.787 | .174 |
| | Within Groups | 84 | 94.227 | 1.122 | | |
| | Total | 86 | 98.236 | | | |
| **Barriers to Using AI** | Between Groups | 2 | 6.835 | 3.417 | 4.732 | .011 |
| | Within Groups | 84 | 60.660 | .722 | | |
| | Total | 86 | 67.494 | | | |
| **The total score of the questionnaire** | Between Groups | 2 | 3.651 | 1.825 | 2.889 | .061 |
| | Within Groups | 84 | 53.075 | .632 | | |
| | Total | 86 | 56.726 | | | |

Note:Statistically significant at $\alpha = 0.05$

Table (9) shows that no statistically significant differences exist with respect to the years of experience variable among English language instructors in applying AI tools in the domains of lesson planning, assessment, student communication, and generally in the questionnaire. Differences did exist in lesson

delivery and difficulty based on the years of experience variable. These findings suggest that the teacher's experience influences both how effectively they can implement artificial intelligence in the classroom and how hard they struggle.

One potential reason is that less experienced teachers might be more receptive to the inclusion of newer technology, e.g., AI, since they have just become familiar with newer teacher training courses and computer equipment. More experienced teachers may, instead, struggle more due to a lack of professional training in newer technology or an entrenched reliance on older pedagogy.

These findings are consistent with previous studies. For example, Zhang&Wang (2023) determined that novice teachers reported greater confidence when using digital tools in education compared to experienced teachers, attributing this to greater digital readiness. Similarly, a study by Kristiawan (2024) recognized that less experienced teachers were more adaptable when using AI-based tools and had fewer worries about technical or pedagogical issues.

Therefore, the disparity in the "Challenges" category can be accounted for in terms of levels of digital fluency and institutional support between experience groups. Experienced teachers may require specific training and assistance in addressing challenges in implementation as well as in being confident when using AI tools.

To show statistically significant disparities between the arithmetic means in directions, Scheffe test in Table (10) was used.

**Table 10. Post Hoc Scheffé Test Statistics for Differences in the Employment of AI Applications in ELT by Years**

| Domain | Comparison | Mean Difference (I–J) | Sig. | Significant? |
|---|---|---|---|---|
| **Obstacles** | Less than 5 years vs more than 10 | .60218 | .026 | Yes |

The Scheffé post hoc test found that there was a statistically significant difference in the "Obstacles to Using AI Applications" category based on years of teaching experience. That is, teachers who have more than 10 years of experience identified significantly more obstacles than teachers with fewer than 5 years of experience (Mean Difference = –0.60218, Sig. = .026). This shows that experienced teachers face more barriers in using AI tools in English language teaching.

On the other hand, no statistical differences were observed for other domains (Planning, Implementation, Evaluation, Communication, and Overall Average) among the three groups of experience (<5 years, 5–10 years, and >10 years).

These findings are partly consistent with Alzahrani (2022), who found that less experienced teachers or digital-native teachers were more likely to embrace using AI tools in their pedagogical practices. Similarly, Wang and Chen (2021) spoke of a "digital gap" among experienced teachers, who are likely to face more resistance or technical problems concerning the adoption of new technologies. This validates the interpretation that the more experience one has in teaching, the greater the felt difficulty in managing advanced digital technologies like AI.

- **Hypothesis (4)** There are no statistically significant differences between the mean scores of the research sample regarding the use of artificial intelligence applications in English language teaching attributed to the variable of training courses. To examine the hypothesis an independent samples t-test was conducted, the table (11) explains that.

**Table 11. t-test Results for Differences in AI Application Use in English Language Teaching According to training**

| **Gender** | **Yes** | | **No** | | **Df** | **t** | **Sig** | **decision** |
|---|---|---|---|---|---|---|---|---|
| **Sample** | 20 | | 67 | | | | | |
| **Domain** | Mean | Std. Deviation | Mean | Std. Deviation | | | | |
| **Lesson Planning** | 3.6 | .824 | 3.3 | .876 | | 1.354 | .179 | Not sig |
| **Applying AI in Teaching** | 3.14 | .768 | 3.05 | .983 | | 1.484 | .142 | Not sig |
| **Lesson Assessment** | 3.17 | .820 | 3 | .945 | 85 | .709 | .48 | Not sig |
| **Communicating** | 3.1 | .879 | 2.89 | 1.12 | | .756 | .452 | Not sig |
| **Barriers to Using AI** | 3.48 | .780 | 3.30 | .915 | | .811 | .419 | Not sig |
| **The total score of the questionnaire** | 3.35 | .7 | 3.11 | .839 | | 1.172 | .245 | Not sig |

Table (11) shows that the significance levels (Sig. 2-tailed) of all the dimensions (Planning, Implementation, Assessment, Communication, Challenges, and Overall Use) were greater than 0.05. It indicates that there are no statistically significant differences between the teachers who were trained and the ones who were not trained, regarding the usage of AI applications in English language instruction.

This result can be accounted for by the likelihood that available training programs are either not sufficiently long in terms of content or duration, or not sufficiently directed towards proper incorporation of AI tools into language teaching. Alternatively, instructors may be employing self-instruction through internet media and testing, thus undermining the effect of formal instruction.

This finding is corroborated by Almutairi (2023), where there were no considerable differences in the application of AI by teachers depending on training background, and this was because of the increasing provision of AI tools and also the role of initiative on an individual level. Similarly, the findings agree with Hamdan and Hussein (2022), who emphasized that the majority of teachers develop their digital skills independently, and formal training generally lags behind technological advancements.

**12- 3 Results of the Open-ended Question** (Qualitative Analysis)

The Question: (Please note any ideas or comments about AI use in English language teaching) The study revealed that 41.7% of the respondents underscored the need for training courses on the effective use of AI tools in the instruction of the English language. Meanwhile, 33.3% of teachers named the lack of funding and infrastructure as the main obstacle to the implementation of AI in schools. Around 25% believed that AI can help but cannot replace teachers . 33.3% more named the utility of AI technologies, such as conversational AI (e.g., ChatGPT),

in developing the speaking and writing abilities of learners. In addition, 16.7% described AI as a double-edged weapon, and the same proportion admitted that they have yet to use AI in their teaching practice. These findings represent both interest in the potential of AI and concern regarding practical use.

**13- Research Recommendations and Suggestions:**

Based on the results, the researcher suggests the following:

**First: Suggestions**

1. Systematically incorporating AI applications into teacher training and certification programs, particularly Educational Qualification Diploma.
2. Establishing and enacting special and ongoing training schemes for English language teachers on how to use AI technologies in lesson planning, application, and evaluation.
3. Providing instructors with a supportive and technologically well-served school environment to effectively utilize AI tools.
4. Engaging teachers to do self-study and share best practices regarding the use of AI through online professional networks.
5. Helping decision-makers ensure the integration of AI into future education policy, particularly in the context of foreign language teaching.

**Second: Recommendations for Further Research**

1. Conducting further studies on the use of AI in English language teaching with other subjects (e.g., math, science).
2. Investigating the effectiveness of employing specific forms of AI tools (e.g., ChatGPT, Grammarly, or Quizlet) to acquire specific skills among secondary students (e.g., writing or speech).
3. Researching trends and attitudes of teachers and learners toward the use of artificial intelligence in English language teaching.
4. Analyzing secondary English language textbooks' content to monitor the adoption of artificial intelligence concepts.
5. Identifying impediments or facilitators for applying artificial intelligence in the Syrian education setting from the perspectives of teachers and educational supervisors.
6. Evaluating the impact of artificial intelligence adoption on the academic achievement of students and learning motivation towards English.
7. Proposing and conducting an artificial intelligence-based training model to measure its impact on the improvement of teachers' digital competencies.

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