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The Benefits of Using the Copilot App in Developing Arabic Vocabulary among Non-Native Learners

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ABSTRACT

This research investigated the impact of the Copilot application on developing vocabulary of learners of Arabic as a second language. To achieve this aim, the research employed both descriptive-analytical and quasi-experimental methodologies. The study involved 25 intermediate-level students at Imam Muhammad ibn Saud Islamic University. The results showed statistically significant differences at the 0.05 level between the mean scores of the experimental group on the two versions of the vocabulary test, favoring the post-test, with a high effect size (0.98). The study recommends encouraging learners to use Copilot for self-learning and research, developing linguistic, research, and analytical skills.

Keywords: Arabic language learners for tourism purposes, Copilot model, Vocabulary.

INTRODUCTION

Language serves as a fundamental tool for human communication, facilitating the exchange of ideas, opinions, emotions, knowledge, and experiences. It fosters social relationships and promotes cooperation to achieve common goals, and thus it is a cornerstone in the development and progress of civilizations throughout history.

Furthermore, Alahmadi (2023) clarifies that the role of language extends beyond being merely a means of communication between individuals; it is a fundamental tool for thought, through which individuals conduct their mental activities. This aspect has sparked debate among scholars regarding the primacy of thought or language. Indeed, language is considered one of the most important elements in shaping cultures and establishing civilizations through the ages.

Undoubtedly, mastering any language and reaching a level of proficiency depends primarily on the size of one's vocabulary. Vocabulary is the foundation upon which all other language skills are built. Moreover, a rich vocabulary enables individuals to express their thoughts and feelings accurately and clearly, and allows them to understand complex texts and advanced dialogues more deeply. The wider one's vocabulary, the more effectively they can communicate and interact confidently and fluently in various linguistic situations.

In support of this, Nation (2018) and Isaka and Alhusseini (2023) stated that having a rich vocabulary enables non-native Arabic learners to understand texts more accurately and express their ideas more clearly, which enhances their confidence in using the language in different communication contexts. They also noted that vocabulary development is not limited to the linguistic aspect only but extends to include the cultural dimension, which is a key to understanding Arab identity.

Alsalmi (2023) stated that vocabulary is an important element in teaching Arabic to non-native speakers, as it represents the bridge that carries meanings and embodies the richness and derivation of the language. Therefore,

its development is considered a primary goal in teaching foreign languages, because it is not just a means of communication, but a tool for thinking and expressing ideas clearly.

Furthermore, many previous research studies have shown that a weak linguistic repertoire is a significant challenge for Arabic language learners who speak other languages. For instance, a study by Almelhes (2024) indicated that 228 learners out of 444 non-native Arabic language learners with a limited linguistic repertoire struggle to communicate with native speakers in the country where they are studying compared to their peers.

As Abdullah and Abdul Hamid (2025) stated, the weak vocabulary of non-native Arabic language learners hinders their understanding of new vocabulary and limits their comprehension. This weakness also delays the acquisition of the required language proficiency and causes learners constantly struggling to grasp new vocabulary.

Given the Kingdom of Saudi Arabia's growing appeal as a tourist destination, attracting over 100 million visitors annually, developing the vocabulary of non-native Arabic learners for tourism purposes should be a primary objective of Arabic language programs in the Kingdom. A limited vocabulary can lead to difficulties and embarrassment for foreign tourists and non-native Arabic learners alike, hindering their ability to meet tourism-related needs.

According to Abdul Wahid (2018, 115), tourists seek not only to visit attractive destinations but also to connect with the people working there.

Research by Wahyuningsih & Mahsar (2024), Mukharramkhon & Parizod, and Milán & Ilona (2024) highlights that foreign language learners' limited vocabulary for tourism purposes hinders their ability to effectively use and apply relevant terms and expressions in various situations, such as hotel inquiries, food ordering, transportation, and understanding tour guides' directions and instructions.

Numerous studies emphasize the need to develop specialized vocabulary for second language learners, particularly in tourism. For instance, Hsu (2014) recommends focusing on functional vocabulary to enable English language learners to communicate effectively in tourism contexts. Similarly, Abdullah (2015) suggests designing targeted programs for Arabic language learners that cater to specific professional contexts, including tourism. Aguirre (2016) also stresses the importance of developing linguistic vocabulary for Spanish language learners in tourism.

Furthermore, Nation (2018) highlights that foreign language learners in tourism require a core vocabulary of 2,000-3,000 words for basic communication. The Common European Framework of Reference for Languages (CEFR) also underscores the significance of lexical competence in professional contexts (Council of Europe, 2018).

In light of these findings, developing the vocabulary of Arabic learners for tourism purposes is crucial for effective communication in various tourism contexts. It enables learners to interact with the local community and gain a deeper understanding of Arab culture. Mastering specialized tourism vocabulary, such as terms related to hotels, restaurants, transportation, and markets, facilitates tourists' daily needs and boosts their confidence while traveling in Arab countries. This linguistic development enriches the tourist experience, making it more authentic and enjoyable, which in turn enhances the image of tourism in Saudi Arabia and encourages repeat visits.

Given the critical importance of vocabulary for learners of foreign languages for specific purposes, many foreign language education programs have focused on developing and enriching it by leveraging the latest technologies, particularly artificial intelligence, which has proven effective in enhancing language learning outcomes.

Numerous studies have demonstrated the effectiveness of artificial intelligence (AI) in developing the vocabulary of foreign language learners. For instance, Godwin-Jones (2018) recommended leveraging digital technologies to enhance tourism vocabulary for language learners. Similarly, Caқ (2024) found that AI-powered adaptive learning platforms analyze learner performance and provide customized vocabulary exercises tailored to individual needs. Applications like Duolingo and tools like Twee enable the creation of targeted vocabulary lists, matching exercises, and sentence construction in realistic contexts, thereby enhancing vocabulary acquisition. Ramendra et al. (2025) further demonstrated the effectiveness of AI and virtual tour technology in developing tourism vocabulary. Their study showed that AI provides accurate linguistic models of specialized words within realistic contexts, offers opportunities for practice through direct interaction, and assesses the accuracy of vocabulary use, providing immediate feedback to reinforce correct usage.

Therefore, the research proposes utilizing Copilot, an artificial intelligence model, to develop the vocabulary of Arabic learners for tourism purposes, building on its demonstrated effectiveness in foreign language teaching (Al-Kadi & Ali, 2024). Copilot's strength lies in its ability to provide interactive and personalized learning environments that cater to individual needs and diverse learning styles, thereby boosting learner motivation and engagement. Additionally, it offers immediate and accurate feedback on performance, corrects errors, and continuously improves language skills.

Defining the Research Problem

To achieve the goals of successful linguistic communication in various situations that require listening, speaking, and writing, a learner of any language should have an appropriate amount of vocabulary that enables them to understand what is heard and read, to read and comprehend what is written in that language, and to be able to communicate orally and in writing. Understanding vocabulary is indispensable for learners of Arabic as a second language, as it is one of the most important elements. It's inconceivable that a learner can express his thoughts and feelings without knowing the words that express them. However, despite the importance of acquiring this vocabulary, many learners of Arabic as a second language exhibit a clear weakness in vocabulary, especially that which is used for tourism purposes. This weakness may stem from difficulties in remembering and recalling vocabulary, where learners acquire words, learn them, read them, and understand their meanings, but struggle to retain them over time. Therefore, it's necessary to develop an appropriate plan to overcome these educational difficulties, leveraging modern technologies in language learning, including artificial intelligence applications like Copilot, to help learners quickly acquire, retain, and use vocabulary in different linguistic situations.

Research Questions

This research aims to answer the following questions:
1. What vocabulary is essential for learners of Arabic as a second language for tourism purposes?
2. Are there statistically significant differences at the 0.05 level between the mean scores of the experimental group in the pre- and post-tests of vocabulary?
3. What is the impact of using the Copilot tool on developing the vocabulary of learners of Arabic as a second language?

Research Objectives

This study has the following objectives:
1. To identify the necessary vocabulary for learners of Arabic as a second language for tourism purposes.
2. To investigate the effectiveness of the Copilot application in developing the vocabulary of learners of Arabic as a second language for tourism purposes.

Research Significance

Theoretical Significance

- Contributing to the development of a modern theoretical framework for leveraging Copilot in teaching Arabic as a foreign language, thereby enhancing the tourism-related linguistic vocabulary of learners.
- Bridging the research gap in Arabic educational literature, particularly given the scarcity of local studies on utilizing Copilot in teaching Arabic as a foreign language.
- Fostering scientific trends toward integrating Copilot in teaching Arabic as a foreign language from a holistic educational perspective, merging theoretical foundations with practical applications.
- Providing a forward-looking vision for teaching Arabic as a foreign language in the Kingdom, aligning with emerging research trends that prioritize future education and digital transformation.
- Contributing to enriching the field of teaching Arabic to non-native speakers, where the program enhances the lexical aspect, a key focus for language acquisition, thus adding scientific value to research in foreign language teaching.

Practical Importance

- To provide policymakers and decision-makers in Arabic language education programs for non-native speakers with scientific foundations for making informed decisions regarding the employment of (copilot), and to develop appropriate legislation and regulations for this purpose.
- Offering practical proposals and recommendations for developing Arabic language programs for non-native speakers that are compatible with Copilot's requirements, enabling more flexible, and able to meet the individual needs of learners.
- Offering practical proposals and recommendations for developing Arabic language programs for non-native speakers that are compatible with Copilot's requirements, enabling more flexible, and able to meet the individual needs of learners.
- Proposing innovative mechanisms for evaluating student performance and providing personalized learning experiences, leading to an expansion in students' linguistic vocabulary.
- Aligning with the Kingdom's Vision 2030 goals, which aim to build a sustainable knowledge economy and develop human capital, with AI-based education serving as a key pillar for achieving these ambitious goals.

Research Scope

1. Human Scope: 25 intermediate-level students learning Arabic for tourism purposes.
2. Geographical Scope: The Arabic Language Institute at Imam Muhammad ibn Saud Islamic University in Riyadh.
3. Time Scope: The academic year 2025/2026.
4. Subject Scope: Identifying appropriate vocabulary for intermediate-level students learning Arabic for tourism purposes.

Search Terms

(Copilot) Model

Search Terms:

(Alrahidan and Alghamdi (2025, p. 70) define Copilot as "A program that serves as an artificial intelligence assistant, helping achieve daily goals through AI. It provides advice, evaluations, direct answers, and supports various tasks, such as generating up-to-date images and designs on demand, while also aiding in education and planning.

While Esfandiari and Akbary (2025) defined it as an AI-powered intelligent writing assistant integrated into Microsoft Office applications that provides users with immediate and personalized feedback during writing through precise contextual suggestions. It relies on an advanced natural language processing (NLP) converter model, enabling it to analyze texts and generate coherent content with a deep understanding of linguistic context, effectively improving academic writing skills and promoting interactive speech markers in argumentative writing.

Operational Definition

The Copilot model can be operationally defined in this research as an intelligent assistant model leveraging artificial intelligence and natural language processing techniques to provide interactive, personalized educational support to learners of Arabic as a second language for tourism purposes. It generates contextual linguistic content, offers immediate feedback, and suggests appropriate vocabulary and linguistic structures for various tourism situations.

Linguistic Vocabulary

Alkahlani and Alqahtani (2025, p. 146) defined it as "single words (nouns, verbs, derivatives, pronouns, particles of meaning, and connectives), as well as linguistic collocations, idiomatic expressions, and phrasal verbs (verb with preposition).

Operational Definition

In this research, linguistic vocabulary is operationally defined as "The set of Arabic words, expressions, and terms specialized in tourism that learners of Arabic as a second language need to communicate effectively in various tourist situations and contexts. This includes:

- Names of tourist places and historical landmarks
- Terms related to reservations, accommodation, and transportation
- Phrases for shopping, restaurants, and tourist services
- Linguistic structures and idiomatic expressions for daily interactions with locals

This vocabulary encompasses semantic, morphological, syntactic, and phonological aspects, as well as the appropriate cultural contexts for its use".

Learners of Arabic as A Second Language for Tourism Purposes:

They are individuals who seek to learn the Arabic language with the aim of using it in tourism contexts, whether they are tourists who wish to communicate with local people or workers in the tourism sector who seek to understand the language in order to provide better services to Arab tourists (Albalawi, 2020).

Operational Definition

In this research, learners of Arabic as a second language for tourism purposes are operationally defined as "Intermediate-level students of Arabic language learners who speak other languages for tourism purposes, studying at the Arabic Language Teaching Institute at Imam Muhammad Ibn Saud Islamic University in Riyadh, with the aim of enjoying visiting Saudi tourist sites and understanding its ancient heritage, as well as being able to join tourism jobs related to Hajj and Umrah".

THEORETICAL FRAMEWORK

Artificial intelligence (AI) represents a technological revolution transforming modern education, serving as an effective tool for developing teaching and learning methods. In foreign language education, AI offers innovative solutions that provide learners with unprecedented opportunities for linguistic practice and interaction. A notable example is the Copilot model, which has shown significant progress in teaching foreign languages, particularly for tourism purposes, by simulating real-life tourist situations through interactive conversations, simultaneous translation, and personalized learning, the Copilot model offers a flexible learning experience tailored to individual needs. Additionally, it enhances learners' linguistic wealth through continuous training without fear of making mistakes.

First Axis: (Copilot) Model and Its Application in Teaching Arabic for Tourism Purposes

Definition of (Copilot) Model

Al-Kadi and Ali (2024) define it as one of the Large Language Models (LLMs) developed by Microsoft (formerly known as Bing Chat), used in conjunction with Chat GPT and Gemini to enhance language learners' proficiency and support innovative teaching methods in English language education.

Alrahidan and Al-Ghamdi (2025, 70) define it as "An artificial intelligence assistant designed to help achieve daily goals. It provides advice, assessments, direct answers, and task assistance, such as generating up-to-date images and designs on demand, supporting education, and facilitating planning.

As defined by Choi et al. (2025), it is a Microsoft Large Language Models (LLMs) application used as an interactive learning tool that provides immediate support and feedback during the learning process. It aims to reduce learners' cognitive load and offer adaptive guidance that enhances their self-confidence and learning competence.

Kurniasih et al. (2025) defined it as an artificial-intelligence application that automatically translates Arabic texts to and from Indonesian. It also helps students and teachers recognize and translate Arabic texts without requiring diacritics or word-by-word translation, thereby increasing the efficiency of educational activities.

Accordingly, the Copilot model can be operationally defined in this research as:

"An intelligent assistant model based on artificial intelligence and natural-language-processing techniques, used to provide interactive and personalized educational support to learners of Arabic as a second language for tourism purposes, by generating contextual linguistic content, providing immediate feedback, and suggesting appropriate vocabulary and linguistic structures for different tourism situations".

(2) The Importance of the Copilot Model in Foreign Language Teaching: Al-Kadi and Ali (2024) explained that the Copilot model plays a prominent role in foreign-language teaching, as illustrated below:

- It enhances learners' language proficiency and supports innovative teaching methods.
- It sustains student engagement and energizes the learning experience.
- It delivers personalized learning, immediate assessment, and feedback.
- It promotes formal learning and enables learners to practice speaking, writing, and comprehension skills in realistic contexts.

While Tran (2024) highlighted the importance of the Copilot model in foreign-language teaching, noting:

- Reduces cognitive load – by offering instant explanations and examples, Copilot eases vocabulary and grammar hurdles, lessening the mental effort needed for research or guesswork.
- Provides immediate feedback – it quickly points out errors in vocabulary, structure, or style, speeding up the learning process and boosting effectiveness.
- Offers personalization and adaptation – content and activities are tailored to the learner's level and goals, whether for daily conversation, tourism, or academic study.
- Builds self-efficacy – continuous, direct support helps learners feel capable of completing language tasks, increasing motivation to continue.
- Developing diverse skills: It can be used for conversation, writing, translation, and acquiring new vocabulary in an interactive way—rather than relying on traditional memorization.

In addition, Panagiotidis (2024) recommended integrating artificial-intelligence models—particularly the Copilot model—into foreign-language teaching because of its strong adaptive-learning capabilities. These include suggesting exercises, explaining vocabulary, and automatically adjusting difficulty based on learner performance, all of which embody the principles of active, personalized learning.

And Mekheimer (2025) reported that using the Copilot model to correct writing among foreign-language learners led to a notable rise in text quality, more frequent revisions, and less student frustration—factors that together boost learning motivation.

- Arabic-specific impact – Kurniasih et al. (2025) note that the Copilot model creates an engaging, effective Arabic-learning experience by letting students and teachers recognize and translate texts without diacritics or word-by-word decoding, speeding up lessons and enabling automatic transliteration.

Importance of the Copilot Model for Teaching Arabic in Tourism Contexts

- Specialized vocabulary lists: The model generates situation-specific word banks (restaurants, hotels, shopping, transport, historic sites, etc.), ensuring learners acquire the most relevant terms for real-world tourist interactions.
- Contextual vocabulary support: The Copilot model explains new words and phrases within real-tourist scenarios, showing learners exactly how to use them in everyday conversations with locals.
- Interactive Vocabulary Exercises: Copilot can design a variety of interactive exercises to reinforce vocabulary memorization, such as multiple-choice questions, fill-in-the-blank exercises, or sentence construction using targeted tourist vocabulary.
- Error Correction: Copilot provides immediate feedback on vocabulary usage, corrects errors, and suggests better alternatives, thus reinforcing learning and preventing the entrenchment of common mistakes.
- Conversation Simulation: Copilot allows learners to practice using new vocabulary in simulated conversations with AI about tourist topics, helping to solidify vocabulary in working memory.
- Vocabulary Expansion through Texts: Copilot can analyze tourist texts such as brochures, signs, or menus, extract difficult vocabulary, and then provide explanations, enriching the learner's vocabulary.
- Correct Pronunciation: Copilot helps learn the correct pronunciation of tourist vocabulary, which is crucial for effective communication and avoiding misunderstandings in real-life situations.

Roles of Non-Native Arabic Learners for Tourism in the Copilot Model

Drawing on recent research that explores AI-driven language models for specific-purpose instruction—such as Godwin-Jones (2022), Warschauer & Matuchniak (2022), Che & Zhang (2023), Crompton & Burke (2023), Dizon & Tang (2023), and Holmes et al.—the roles of non-native Arabic learners within the Copilot framework for tourism can be outlined as follows:

- Taking the initiative in asking questions and inquiries: The student formulates clear and specific questions about tourist situations they'd like to learn, such as making hotel reservations, ordering food, or asking for directions.
- Continuous interaction and active practice: The learner practices the language through interactive conversations with Copilot, simulating real-life situations and enhancing language skills through repetition and experimentation.
- Self-assessment and identification of weaknesses: The student identifies linguistic areas needing improvement, such as tourist vocabulary, grammatical structures, or pronunciation, and directs their learning accordingly.
- Personalization according to personal needs: The learner directs Copilot towards his specific needs, focusing on particular accents or tourist terms related to destinations he's interested in.
- Information verification and practical application: The learner verifies the accuracy of linguistic information and applies it in real-life contexts to ensure correct understanding.
- Taking advantage of immediate feedback: The learner utilizes Copilot's instant corrections and suggestions to enhance language performance and boost fluency in tourist situations.
- Perseverance and self-discipline: The learner commits to a regular schedule and perseveres with continuous training, leveraging AI self-learning nature to improve.

Therefore, it can be said that the roles student assumes when using Copilot align with the modern educational philosophy of learner-centered learning. Student is no longer merely passive recipients of knowledge, but rather leaders of his own learning journeys, setting his own goals and directing his learning according to his individual needs. This autonomy demands a high level of self-awareness and responsibility, requiring learner to continuously critically evaluate his own learning. Furthermore, the success of the AI-assisted learning experience depends heavily on the student's commitment and self-discipline. Ultimately, this model represents a genuine partnership between human and machines, where each complements the other to achieve optimal educational outcomes.

The Roles of Non-Native Arabic Language Teachers for Tourism Purposes in the Copilot Model

Employing modern artificial intelligence technologies, like Copilot, advances foreign language teaching for tourism. The teacher's role is crucial, guiding students to maximize the model's potential. They ensure tech is used in contextually relevant ways, bridging learning and real-world tourism. Key roles include:

- Facilitating learning
- Providing context
- Ensuring cultural relevance

The teacher's expertise enhances the AI experience.

The designer and planner of educational experiences:

The Designer and Planner of Educational Experiences

The teacher designs integrated educational activities combining the Copilot model with the curriculum, specifying learning objectives and expected outcomes for each activity (Luckin et al., 2022).

Educational Mentor and Guide

Where the teacher guides students on how to make optimal use of Copilot, and teaches them effective questioning strategies and productive interaction with artificial intelligence (Kim & Kim, 2022).

- Educational mentor and guide: The teacher guides students on optimal Copilot use, teaching effective questioning strategies and productive AI interaction (Kim & Kim, 2022).

Content Critical Evaluator: The teacher is responsible for reviewing and evaluating the linguistic and cultural information provided by Copilot, ensuring its accuracy and relevance to the targeted touristic context (Zawacki-Richter et al., 2019).

- Cultural and Communication Skills Developer: The teacher focuses on developing aspects that AI cannot fully cover, such as: deep understanding of cultural contexts, non-verbal communication, and flexibility in social situations (Selwyn, 2022).
- Assessment and Performance Measurement Designer: The teacher establishes comprehensive evaluation criteria to measure students' progress in applying acquired tourism vocabulary, integrating Copilot usage as part of formative and summative assessment (Holmes & Tuomi, 2022).
- Emotional Support and Motivator: The teacher provides psychological support and motivation to students, especially those who may face difficulties in self-learning or feel frustrated (Bozkurt et al., 2021).
- Digital and Ethical Skills Trainer: The teacher educates students on responsible and ethical use of technology, including understanding AI limitations and digital privacy (UNESCO, 2021).
- Continuous Researcher and Developer: The teacher remains up-to-date with developments in the field of educational artificial intelligence and updates his teaching strategies based on the latest research and practices (Roll & Wylie, 2016).

Blended Learning Coordinator: The teacher balances AI-assisted learning with direct human interaction, creating an integrated learning environment that combines the advantages of both approaches (Graham, 2019).

- Cooperative learning facilitator: The teacher encourages teamwork where students share their experiences with Copilot, and learn from each other in diverse tourist contexts (Dillenbourg et al., 2023).

Second axis: Vocabulary for learners of Arabic who speak other languages for tourism purposes:

The concept of vocabulary:

Alnaqa and Hafiz (2002, p. 142) defined it as "The sum of words an individual uses in his daily life to express his thoughts, feelings, and needs, and to understand what he hears or reads from others". While Ta'ima (2004, p. 198) defined it as "The set of words and terms an individual possesses and uses in linguistic communication, whether in speech, writing, or comprehension". Additionally, Abd-Albari (2011, p. 26) defined it as "the linguistic units that can occur spontaneously in speech or writing". Furthermore, Alkahlani and Alqahtani (2025, p. 146) defined it as "Individual words, including nouns, verbs, derivatives, pronouns, particles, and conjunctions, as well as collocations, idiomatic expressions, and phrasal verbs (verbs with prepositions)".

Operationally, in this research, it can be defined as: "The set of Arabic words, expressions, and terms specialized in the field of tourism that learners of Arabic as a second language need for tourism purposes to communicate effectively in different tourist situations and contexts. It includes the names of tourist places and historical landmarks, terms related to reservations, accommodation, and transportation, phrases related to shopping, restaurants, and tourist services, in addition to the linguistic structures and idiomatic expressions common in daily interactions with local people. This vocabulary includes semantic (meaning), morphological (structure), syntactic (usage), and phonological (correct pronunciation) aspects, as well as the appropriate cultural contexts for its use".

Objectives of Vocabulary Teaching for Non-Native Arabic Speakers

Alsalmi (2022, p. 135) summarized the objectives of vocabulary teaching for non-native Arabic speakers as follows:

- Pronunciation and Writing: Students should be able to pronounce and write the sounds that make up words.
- Meaning Recognition: Students should be able to recognize the meanings of words and the meanings of words that share their roots, and to distinguish between their connotations.
- Correct Usage: Students should be able to use them in correct sentence structures.
- Contextual Appropriateness: Students should be able to use the appropriate word at the appropriate time.
- Vocabulary Development: Students should develop their vocabulary to enable them to communicate effectively in different contexts.
- Effective Communication: Students should be able to choose the vocabulary that best conveys the intended meaning.
- Derivation**:** Students should learn how to derive words from a word.

The Importance of Teaching Vocabulary to Non-Native Arabic Language Learners:

The importance of teaching vocabulary to non-native Arabic language learners can be summarized as follows:

- Vocabulary is essential for developing listening, speaking, reading, and writing skills. Without a sufficient vocabulary, learners cannot effectively practice these skills (Younes & Al-Naqa, 2009).
- A learner's vocabulary is a strong indicator of the learner's language proficiency and ability to communicate in the target language. The larger the learner's vocabulary, the greater the learner's ability to understand and communicate (Abdul Aziz, 2010, p. 203).
- Learning Arabic is an enjoyable and engaging journey due to its rich vocabulary and powerful structures, which are unmatched by any other language. Knowledge of vocabulary enables learners to continue self-directed learning and expand their linguistic knowledge independently (Jeel Arabic Academy, 2024).
- It empowers learners to effectively understand spoken and written texts. In addition to equipping them with the ability to express themselves clearly and accurately in speech and writing, this enhances all four language skills (Rahmani & Mohseni, 2024).
- The rich vocabulary of Arabic language learners who speak other languages enables them to use modern technologies such as artificial intelligence effectively, easily, and conveniently (Abdish, 2024).

Therefore, the importance of teaching Arabic vocabulary to non-native speakers for tourism purposes can be summarized as follows:

- Basic Communication: Enabling learners to understand and form simple sentences for navigation, ordering food, and daily interaction.
- Cultural Understanding: Helping learners better understand local customs and traditions through related vocabulary.
- Safety and Emergency: Helping learners understand important warnings and instructions in public places or in emergencies.
- Enhanced Experience: Enriching learners' experience through direct interaction with local people and understanding signs and information.
- Effective Shopping: Facilitating more effective purchasing and negotiation in local markets.
- Cultural Exchange: Opening up opportunities to learn about Arab and Islamic culture and civilization.
- Building Bridges: Breaking down cultural barriers and building bridges of communication with the Arab community.
- Career Opportunities: Enabling learners to pursue various tourism jobs in Arab countries that primarily require proficiency in Arabic and understanding Arab customers or tourists.
- Respect for Local Culture: Helping learners demonstrate respect for local culture through the use of Arabic.
- Practical Skills: Enabling learners to understand instructions and directions in public places, ask for help in emergencies, and interact more deeply with native Arabic speakers.
- Deeper Engagement: Helping learners enjoy the tourist experience without significant language barriers and understand the local culture more profoundly.

Types of Vocabulary

Ta'ima (1986, pp. 616-618) divided vocabulary into four categories:

- According to Linguistic Skills: This includes vocabulary for comprehension, speaking, and writing, as well as latent vocabulary, which includes contextual vocabulary interpreted from context and analytical vocabulary interpreted based on morphological properties.

- According to Meaning: This includes content words (nouns, verbs) forming the core of the message, functional words (prepositions, conjunctions, interrogative words) connecting words and sentences, and cluster words conveying specific meanings independently but requiring auxiliary words.
- According to Specialization: This includes auxiliary words used in everyday life or informal contexts and specialized words conveying specific meanings in particular fields.
- According to Usage: This includes vocabulary frequently used in writing, speaking, hearing, or reading, and dormant vocabulary retained in an individual's linguistic repertoire despite not being used.

(5) Criteria for Selecting Vocabulary for Learners of Arabic as a Foreign Language:

Ismail (2021, p. 20) outlined the following criteria for selecting vocabulary for learners of Arabic as a foreign language:

- Frequency: Selecting words that are frequently used and encountered by learners, making them easier to recall and prioritize in teaching.
- Distribution and Range: Preferring words used in multiple Arab countries over those used in only one, ensuring broader applicability.
- Availability: Choosing words that are readily available, convey specific meanings, and are easily accessible to learners.
- Comprehensiveness: Selecting words that cover multiple areas, enabling learners to acquire related vocabulary and expand their linguistic repertoire.
- Importance: Prioritizing words that satisfy specific learner needs, are teachable, and meet the standard of "teachability", making them easy for learners to learn and teachers to teach.

RESEARCH METHODOLOGY AND PROCEDURES

This section outlines the methodological procedures adopted by the current research.

1. Research Methodology: The research employed a quasi-experimental design with a single experimental group. The experimental method was chosen for its suitability in examining the effect of using Copilot on developing vocabulary among learners of Arabic as a second language. The research procedures involved identifying the learners of the research group, administering the measurement tool as a pre-test and post-test, and presenting topics using the Copilot tool to the students of the experimental group.
2. Experimental Design: The researcher employed a quasi-experimental design with a single experimental group studying using Copilot, as illustrated in the following figure:

Table 1. Experimental design of the research.

Group	Pre-test	Independent Variable	Dependent Variable	Post-test
Experimental	Vocabulary test	Using Copilot App	Vocabulary	Vocabulary test

3. Research Population: The research population consists of learners of Arabic as a second language at Arabic language institutes in the Kingdom of Saudi Arabia.

4. Research Sample: A sample of 25 intermediate-level Arabic language learners was selected from the Arabic Language Institute at Imam Muhammad ibn Saud Islamic University in Riyadh.

5. Research Materials and Tools: A. Questionnaire to Determine the Vocabulary Needed by Learners of Arabic as a Second Language

The aim of this questionnaire was to develop a list of vocabulary words necessary for learners of Arabic as a second language for tourism purposes. To achieve this, the researcher took the following steps:

- The researcher consulted several books and scholarly references closely related to the topic of vocabulary words, and benefited from them in developing a set of vocabulary words necessary for learners of Arabic as a second language for tourism purposes.
- The researcher also consulted a number of educational research studies that focused on teaching vocabulary to learners of Arabic as a second language, to utilize the vocabulary words they contained that are necessary for learners of Arabic as a second language.
- The researcher reviewed the theoretical framework of the research and its discussion of the foundations of the vocabulary words necessary for learners of Arabic as a second language.
- The researcher relied on the objectives of teaching Arabic as a second language.
- The researcher reviewed the language programs studied by learners of Arabic as a second language.

- The researcher administered an open-ended questionnaire to specialists in the field of education, including faculty members and teachers specializing in teaching Arabic as a second language. Questionnaires were distributed to them, and the aim of this questionnaire was to answer the following question: "What linguistic vocabulary is necessary for learners of Arabic as a second language for tourism purposes, and which should be developed in them and which they need in their interaction during tourist visits in the Kingdom of Saudi Arabia?"
- The researcher transcribed the questionnaires that were applied, and the repeated, overlapping and unsuitable vocabulary for the learners was excluded.
- In light of the above, the researcher prepared a preliminary list of (50) vocabulary words necessary for learners of Arabic as a second language for tourism purposes. These words were compiled into a questionnaire to be reviewed by a group of specialists.
- The questionnaire was presented to a group of (15) arbitrators specializing in teaching Arabic to non-native speakers to ascertain their opinions on the suitability of these words for learners of Arabic as a second language.

The percentage of importance and suitability of each item was calculated by giving one score to each item if it was suitable, and zero if it was not suitable, for each arbitrator individually. The scores obtained by the item were then totaled for all arbitrators, and the value was accepted with a 75% consensus using the following equation:

$$\text{Consensus score} = \frac{\text{Number of those who agree}}{(\text{Number of agreements} / \text{Total number of arbitrators}) + \text{Disagrees}} \times 100$$

In light of the arbitration results, the researcher made the necessary adjustments suggested by the arbitrators and excluded vocabulary items that did not achieve an approval rate of 80% or more, a threshold accepted by many educational studies. This led to the development of a list of necessary vocabulary for learners of Arabic as a second language for tourism purposes, along with the relative weight of each item. The list comprised (40) items, as shown in the following table.

Table 2. Vocabulary Needed by Learners of Arabic as a Second Language for Tourism Purposes and its Relative Weight.

S. No.:	Item	Freq.	Ratio	S. No.:	Item	Freq.	Ratio
1	The Two Holy Mosques	15	100%	21	Plaster	14	93.33%
2	Pilgrims	15	100%	22	meningitis	14	93.33%
3	Umrah Performers	15	100%	23	Signs	14	93.33%
4	religious rituals	15	100%	24	Ancient	14	93.33%
5	Landmarks	15	100%	25	Oasis	14	93.33%
6	Heritage	15	100%	26	Beacon	13	86.66%
7	Hotels	15	100%	27	Revelation	13	86.66%
8	Art	15	100%	28	Part	13	86.66%
9	Museum	15	100%	29	Old	13	86.66%
10	Documents	15	100%	30	Inherited	13	86.66%
11	Citadel	15	100%	31	Memorial	13	86.66%
12	Palace	15	100%	32	Model	13	86.66%
13	Embroidery	15	100%	33	Stamp	13	86.66%
14	Decorations	15	100%	34	Sign	13	86.66%
15	Exhibition	15	100%	35	Aroma	12	80%
16	Radiant	14	93.33%	36	Masmak Palace	12	80%
17	Authentic	14	93.33%	37	Tower	12	80%
18	Luxury	14	93.33%	38	Roots	12	80%
19	Prosperity	14	93.33%	39	Mudbrick	12	80%
20	Inscriptions	14	93.33%	40	Guest room	12	80%

In light of the above, the first question has been addressed: What linguistic vocabulary is necessary for learners of Arabic as a second language for tourism purposes?

B- Vocabulary Test for Learners of Arabic as a Second Language

Defining the test objective: This test aims to design a valid and reliable instrument to assess the achievement level of learners of Arabic as a second language - the research group - in linguistic vocabulary for tourism purposes.

Test Instructions

The test instructions were crafted with care. Separate guidelines were prepared for test-takers and examiners, focusing on:

- Clear language.
- Explaining the test's purpose.
- Specifying time allocations.
- Guiding how to answer questions.
- Defining the examiner's role in facilitating best responses.

Formulating the Test Items

The researcher followed these steps to construct the test items:

1. Reviewed literature on vocabulary assessment scales.
2. Used the compiled vocabulary list.
3. Extracted meanings from Arabic dictionaries.
4. Created multiple-choice questions with 3 alternatives.

Formulating the Test Items

The researcher constructed the test items by:

1. Reviewing vocabulary assessment literature
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4. Crafting multiple-choice questions with 3 options

Test items were designed to be clear and concise, categorized into:

- Meaning
- Singular
- Plural

Test Correction Key

A correction key's been prepared for the 80-question test.

- 1 mark for correct answers
- 0 marks for incorrect or unanswered questions
- Multiple answers = incorrect

Test validity determination:

The test was validated by experts in test preparation.

- Modifications were made based on their feedback.
- Wording simplified for learners.
- Answer alternatives adjusted.
- Test deemed valid and ready for application.

Test Reliability Assessment

The test was given to 5 intermediate learners (not in the main sample) and re-administered after 15 days.

- Reliability coefficient = 0.874
- Self-validity coefficient = 0.934

The test shows high reliability and validity.

Regarding the Clarity of the Test

The test's exploratory experience showed:

- No ambiguity in learners' understanding.
- Questions were at their level.
- Questions were sufficient.

Calculating the Difficulty and Ease Indices:

The researcher calculated these indices to identify questions needing adjustment.

- Difficulty index = 1 - ease index
- Ease index = 1 - difficulty index

Correct Answers C

$$\text{Ease Factor} = \frac{\text{Correct Answers}}{\text{Correct Answers + Incorrect Answers}} = \frac{C}{C+E}$$

Summary of Findings

- Ease coefficients: Ranged from 0.18 to 0.91
- Difficulty coefficients: Ranged from 0.06 to 0.84

CONCLUSION

The results indicate a closeness between ease and difficulty coefficients, confirming the test's suitability for learners, in addition to the validity of the arbitrators' assessment.

Calculation of Discrimination Index: The discrimination index for the vocabulary test was calculated using the variance method. The discrimination indices for the test questions ranged between 0.24 and 0.72, which is considered acceptable.

Determining the Test Administration Time: By calculating the average time taken by the learners, the test administration time was determined to be 50 minutes.

After confirming the test's validity, reliability, and suitability, and calculating the appropriate administration time, the final version of the test was deemed suitable for use with the research group.

C- Instructional Design Model: The researcher adopted the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation.

Phase One: Analysis

The aim is to identify the needs and define the goals. The researcher conducted the following analysis:

- Problem Analysis: The research problem was identified as the low vocabulary among learners of Arabic as a second language, requiring the use of modern technologies, specifically Copilot, to develop tourism-related vocabulary.
- Learner Analysis: The sample's characteristics were identified, including their intellectual, academic, psychological, and social traits. SMART objectives were formulated based on their needs and interests. Learning activities were designed to utilize Copilot. The participants lacked basic tourism vocabulary but had basic computer and mobile device skills.
- Learning Environment Analysis: Each learner had access to a functioning smart device with a strong internet connection.
- Learning Task Analysis: The core learning tasks focused on vocabulary development, including synonyms, antonyms, and singular/plural forms, and their application in various contexts.
- Resource and Limitation Analysis: The research was conducted at the Arabic Language Institute of Imam Muhammad ibn Saud Islamic University, with access to necessary teaching equipment. A challenge faced by the researcher was coordinating learners' schedules, which was overcome through an introductory meeting and coordination with the institute's administration.

Phase Two: Design

The design phase involved defining the experiment's objectives and developing plans and drafts for implementing the Copilot technique to develop vocabulary among Arabic as a Second Language (ASL) learners. This phase included:

1- Designing the Experimental Objectives: The research objective was to measure the impact of Copilot on vocabulary development among ASL learners.

2- Designing the Research Instrument: The research instrument was a vocabulary test, designed and reviewed by experts to assess ASL learners' vocabulary.

3- Designing the Electronic Content: The electronic content was designed around tourism-related topics in the Kingdom of Saudi Arabia, accessible at (https://2u.pw/4fe6UK). Copilot was chosen for its free access, Arabic interface, ease of use, and suitability for teaching vocabulary, making it appealing to tech-savvy learners.

4- Task Design: During the teaching process, the researcher records learners' mistakes and observations, collects and records points on a special card at the end of the day, and shares them with learners to boost motivation and self-evaluation. Learners are tasked with applying linguistic vocabulary and searching for it via Copilot, accessible through QR code or a provided link.

5- Interaction Methods: The researcher determined that interaction with the content would be individual, with learners assessed and progress displayed individually, and leaderboards presented.

6- Electronic Resources: The research experiment used Copilot, requiring internet access and educational media in the classroom, enabling learners to continue learning, familiarize themselves with vocabulary, and apply it in different situations.

7- Guidelines: The vocabulary used to assess learners was explained, along with the assessment tool, scoring system, and point calculation.

8- Content Scenario: The scenario outlined steps for using Copilot and learner interaction.

Phase Three: Development/Production

The electronic content was developed based on the steps taken in the previous phases.

Phase Three: Development/Production

In this phase, the initial version of the electronic content was developed, building on the steps taken in the previous phases.

Phase Four: Implementation

The initial version was tested on a small group to ensure procedures were sound, then applied to the research sample and implemented as planned.

Phase Five: Evaluation

The research experiment's efficiency and effectiveness were measured through pre-evaluation, formative evaluation, and summative evaluation. This stage is interconnected with other stages, ensuring the research tool's overall quality.

Research Variables

- Independent Variable: Copilot instrument
- Dependent Variable: Vocabulary

Research and Experimental Procedures

To determine Copilot's effectiveness in developing Arabic vocabulary for second language learners, the research followed these procedures:

- Reviewing literature on AI as an independent variable and its impact on language learning.
- Creating a learning material page and integrating Copilot for learner use.
- Testing Copilot to ensure proper functionality.
- Preparing and validating a vocabulary achievement test with sound psychometric properties.
- Selecting a research group of 25 intermediate-level learners of Arabic as a second language at Imam Muhammad ibn Saud University's Arabic Language Institute in Riyadh.
- A pre-test was administered to assess the research group's proficiency in tourism-related vocabulary before starting the experiment.
- The group was taught how to use Copilot to identify and apply vocabulary in different situations, with guidance on the research experiment. They received a link to study materials and the vocabulary test, and the 4-week study period was agreed upon.
- A post-test assessed the group's tourism-related vocabulary proficiency after completing the experiment and using Copilot.
- Data was compiled, statistically analyzed, and results were recorded, discussed, and used to formulate recommendations and research proposals.

Statistical Methods Used

The Statistical Package for the Social Sciences (SPSS) was used to analyze the collected data. The following statistical methods were used: frequencies, percentages, arithmetic mean, standard deviation, Pearson correlation coefficient, Cronbach's alpha test, independent samples t-test, and eta-squared (η^2) to measure the effect size.

Research Findings and Discussion

To answer the first question, "What vocabulary is necessary for learners of Arabic as a second language for tourism purposes?", the research identified 40 essential vocabulary words for tourism purposes.

- The vocabulary selection was based on a relative weight of 80% or more from expert arbitrators, indicating a high level of agreement on their suitability.

- The selected vocabulary words are deemed necessary for learners to effectively communicate in tourism-related situations.

METHODOLOGY

1. A vocabulary questionnaire was administered to a panel of expert arbitrators to identify the necessary vocabulary for learners of Arabic as a second language for tourism purposes.
2. The relative weights of the frequency of agreement regarding the suitability of each word were calculated.
3. Words that did not receive a relative weight of 80% or more were removed, indicating they were not deemed suitable by the majority of arbitrators.
4. The final list of 40 vocabulary words was compiled, representing the essential words for learners to master for tourism purposes.

To answer the second question, "Are there statistically significant differences at the 0.05 level between the mean scores of the experimental group in the pre- and post-tests of the vocabulary test?", the independent samples t-test was used.

- Means and standard deviations were calculated using SPSS version 25.
- Results show significant differences between pre- and post-test scores.

The results are shown in the following table:

Table 3. Means, Standard Deviations, t-value, and its statistical significance for the scores of the experimental group in the pre- and post-tests of the vocabulary test.

Application	Number of learners	Mean scores	Standard deviation	t-value	Significance level
Pre-test	35	21,60	6,65	34,48	0,05
Post-test	35	68,32	3,88		

The data in Table 3 reveals

- Pre-test mean score: 32.68 (SD = 8.83)
- Post-test mean score: 60.21 (SD = 6.56)
- t-value: 48.34
- Significance level: Statistically significant at 0.05

The results indicate a statistically significant difference between the mean scores of the experimental group in the pre- and post-tests, favoring the post-test. This suggests a notable improvement in vocabulary acquisition among the research group after using the Copilot application.

Final Answer

The experimental group's vocabulary acquisition improved significantly after using the Copilot application, with a statistically significant difference ($t = 48.34$, $p < 0.05$) between pre-test ($M = 32.68$, $SD = 8.83$) and post-test ($M = 60.21$, $SD = 6.56$) scores.

To answer the third research question, which states: What is the effect of using the Copilot tool on developing the vocabulary of Arabic as a second language learners?

To ascertain the effect size of the Copilot tool on developing the vocabulary of Arabic as a second language learners, the Eta-squared (η^2) function was used:

$$\text{Eta squared } (^2\eta) = \frac{t^2}{t^2 + df)}$$

The following table shows the results obtained when calculating the effect size of the Copilot tool on developing the vocabulary of Arabic as a second language learners.

Application	Maximum Score	Arithmetic Mean	Standard Deviation	t-value	Effect Size	It's Type
Pre-test	80	21,60	6,65	34,48	0,98	High
Post-test	80	68,32	3,88			

It is clear from the previous table that the effect size reached (0.98) in the vocabulary test, and this indicates that the Copilot tool has a high effect on developing vocabulary among learners of Arabic as a second language (members of the research group).

Final Answer

The Copilot tool has a high effect size (0.98) on developing vocabulary among Arabic as a second language learners.

Explanation

The results show statistically significant differences between pre- and post-test performances, favoring the post-test, indicating the effectiveness of the Copilot application. The effect size calculation ($\eta^2 = 0.98$) confirms the significant impact of Copilot on developing language skills.

Summary

The Copilot tool is effective in developing vocabulary and language skills for Arabic as a second language learners, particularly for tourism purposes.

The Researcher Attributes These Results to

- The Copilot application helped learners diversify their knowledge sources by presenting educational content tailored to each learner's performance.
- There was significant learner engagement with the new technology experience.
- Individual differences were considered, and learning topics could be repeated, helping retain learning effects.
- The engaging and new content motivated learners to improve themselves and their language performance.
- The Copilot application enhances learners' sense of security and provides them with freedom in choosing their learning style.
- Using engaging learning resources impacted enjoyment of learning and application of language vocabulary.
- Easy access to Copilot anytime, anywhere reduces pressure on learners.

In light of the findings of the current research, it can be said that these results are consistent with the findings of studies by Bozkurt et al. (2021; 2025), Ramendra et al. (2024), Saq; Alrahdan and Alqhamdi (2025), and Choi et al. (2025).

These studies have demonstrated that artificial intelligence applications, including the recently launched Copilot program, serve as effective tools to enhance learning, deepen contextual understanding, develop higher-order skills, increase learner engagement and satisfaction, foster involvement in the learning environment, and boost productivity and efficiency in tasks such as information retrieval, writing, thinking, idea generation, and text translation.

Research Recommendations

Based on the findings of this research, the following recommendations are deemed necessary:

- Utilize artificial intelligence applications, a modern technology, in various learning environments to make learning more engaging and effective for learners.
- Specialists in teaching Arabic as a second language should focus on artificial intelligence applications, particularly Copilot, given its importance in developing learning outcomes.
- Encourage learners of Arabic as a second language to use Copilot for self-learning and research, developing linguistic, research, and analytical skills.
- Promote research and development in AI in teaching Arabic as a second language, exploring new possibilities and improving existing tools like Copilot.
- Focus on enriching vocabulary and developing contextual semantics skills, enhancing verbal fluency and effective communication.
- Arabic language institutes should design supervised websites and apps for teaching vocabulary.
- Conduct awareness seminars and training programs for teachers on using AI applications in vocabulary teaching and language skills acquisition.
- Develop supportive guides for teachers and learners to interact positively with AI applications.
- Equip classrooms with tablets, enabling learners to use technology in their learning process.

Research Proposals

In light of the current research findings, further studies are suggested:

- Investigate the impact of Copilot on reading skills in Arabic language learners.
- Examine the effect of chatbots on developing linguistic communication skills.

- Explore the reality of AI applications in developing language skills.
- Develop and evaluate an AI-based program for language production skills.
- Assess the impact of Microsoft Copilot on language performance.
- Investigate teachers' perceptions of using Copilot in teaching Arabic.

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