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Effectiveness of Mobile-Assisted Instruction in Enhancing the EAP Reading Performance of Faculty of Education EFL Freshers

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Abstract

This study aimed to assess the effectiveness of mobile-assisted instruction (MAI) in enhancing the English for Academic Purposes (EAP) reading performance of Faculty of Education (FoE) English as a Foreign Language (EFL) freshers. The participants were 241 FoE EFL freshers enrolled in six majors, studying the EFL course at the FoE in Al'isma'ilayya, Suez Canal University. They were randomly selected and divided into one experimental group (117 students) and one control group (124 students). The study design was quasi-experimental. The experimental group studied the prescribed coursebook activities, using MAI as part of their EFL course, whereas the control group studied the same activities using the regular method. Two instruments were prepared by the researcher: an EAP pre-posttest and an instruction evaluation survey. The results indicated that MAI was effective in enhancing the EAP reading performance of the experimental group. Additionally, it was even more effective than paper reading instruction in enhancing the EAP reading performance (skills) of the FoE EFL freshers. The experimental group participants expressed satisfaction with the MAI of EAP reading and the other instruction aspects in general and mentioned more merits of MAI than the demerits.

Introduction

Mobile-assisted language instruction (MALI), or MAI of the language, has become a nascent strategy in research with growing experiences in language instruction settings. The literature review yields the conclusion that the use of MAI together with EAP reading is **not** clear in the Egyptian context which is largely rich in other strategies to improve EFL, but not EAP, reading. Research has also shown that MAI can have a positive impact on various aspects of language learning, including vocabulary learning, reading comprehension, and cognitive load, as revealed by Okumuş Dağdeler (2023) and Ozer and Kılıç (2018) also indicating benefits of such a type of learning.

It is worldwide known that EAP reading is essential for success in various university programs delivered in English. However, it is claimed that it does not receive due attention. For instance, a considerable minority of students finish the readings embedded in their courses, and this aspect mainly results in a decline in final exams (Kerr & Frese, 2017, p. 28). According to Kerr and Frese (2017, p. 28), several reasons account for this problem: students' lack of preparation and motivation, time limits, and students' negligence. The researchers, therefore, see that there is always a consistent endeavor to search for more effective and enjoyable ways to help students perform better in EAP reading.

Genuinely, EFL reading is a complex cognitive process that involves the mental addressing of various linguistic elements including vocabulary, phonology, syntax, and semantics at interplay. Research emphasizes the importance of vocabulary knowledge for the reading comprehension of EFL learners (TEFL Educator, 2024). Reading fluency is crucial for successful comprehension, as fluent readers are accurate and fast in recognizing words and utilizing lexical and syntactic knowledge to understand text (Andoko et al., 2020). Strategies,

such as ‘graphic strategies’ and ‘comprehension monitoring’, have also been proven effective in improving English reading for EFL readers (Andoko et al., 2020).

At heart, teaching EFL reading involves not only vocabulary but also essential skills such as skimming, scanning, inferencing, predicting, and guessing to enhance reading comprehension (TEFL Educator, 2024). It was found that MAI as an intervention was effective in enhancing EFL students' vocabulary retention and second language (L2) learning as perceived by Okumuş Dağdeler (2023) and in improving academic achievement and acceptance of mobile tools among EFL students as revealed by Ozer & Kılıç (2018). The integration of MAI and reading was regarded as fostering the critical reading of university EFL students (Muhammad et l, 2020). Accordingly, MAI was adopted in the current study to check MAI’s potential benefits in EAP reading regarding students’ performance and satisfaction.

The Rationale for the Study

From the era of the pandemic until now, mobile phones have been used as portable computers containing all the information one might need. They, to a large extent, have replaced ordinary books and paper. Recently, phones and tablets have widespread access to the internet, too, which sheds light on new horizons for enhancing the learning of new content. Learners everywhere have been observed to carry mobile devices of different types, especially the SMART ones as not only reservoirs of content but also as helpers to find meaning of an unknown one.

From the novelty perspective, the evidence provided in the literature (to come) supports the conclusion that *no* study has been conducted in Egypt to assess the use of MAI in the EAP reading performance of Egyptian university FoE students. Specifically, there has been no study conducted on EAP reading in ‘Egypt’ within the last five years, to the best of the researcher’s

knowledge. Most of the strategies used in Egypt did not handle the MAI strategy, either, as discussed later.

From a different perspective, the need for conducting a study using EAP reading instruction on the premises of the Suez Canal University, an untrodden place for EAP reading research, is evident, let alone the rarity, if not the inexistence, of such studies in the Egyptian context, let alone the fact that Secondary-Stage students come from the stage with almost no idea about EAP reading. Thus, it was seen that there was a gap in the literature which needed to be filled.

Furthermore, bearing in mind research displaying a further need for investigation in the area of reading, e.g. Ali et al. (2022), as discussed later, it can be stressed that this call for further investigation forms further grounds for the present study. Besides, the inexistence of MAI in EAP reading studies in the Egyptian context, and the benefits and features of MAI, as will be discussed later, were taken into consideration, as a spur for conducting the study.

Besides, a pilot (diagnostic) test was conducted by the researcher at the beginning of the second term of the academic year 2023-2024. It included four reading passages on EAP subjects in the 'education' field, and their 'construct validity' and 'test-retest reliability' were checked. The readings and the related questions manipulated and assessed the four main skills of reading for gist (skimming), reading for specific information (scanning), reading for detailed understanding, and extracting the meaning of keywords. These skills are considered *key* reading skills, e.g. Gibson (2008). The test total mark was 79. The sample was 211 Faculty of Education (FoE) freshers randomly selected from six of ten majors representing all the majors. The six majors were Arabic, Educational Psychology, Home Economics, the German language, French Language, and music Education. The total test score was 79. Table (1) below demonstrates the statistics of means and standard deviation for the test results.

Table 1

the sample's number, mean score, and standard deviation

Number	Mean score	Standard Deviation
211	31	11.6

As indicated in Table (1), the sample's mean score was 31 with a standard deviation of 11.6. This analysis revealed that the mean score did not even reach the halfway level of 39.5 or above, which indicated their deficiency in manipulating most EAP/educational readings, reflecting a lack of the main skills of reading for gist, reading for specific information, reading for detailed understanding, and extracting the meaning of key words. Besides the 'large' standard deviation meant there was much variance in student scores. The previous two findings proved the necessity for remedial action.

Statement of the Problem

The present study problem was represented in that the FoE freshers were weak in the EAP-related main reading skills of reading for gist, reading for specific information, reading for detailed understanding, and extracting the meaning of keywords. The present study also reflected a research problem in the form of the inexistence of a study addressing the use of mobile-assisted EAP reading instruction offered to FoE freshers in Egypt (as proven by the literature to come). Therefore, there was a need for this type of investigation to fill this research gap.

Aim of the Study

1. The study aimed to statistically assess the effectiveness of mobile-assisted instruction in enhancing the EAP reading performance of FoE EFL freshers.
2. Another aim was to descriptively check the effectiveness by assessing the FoE EFL freshers' satisfaction with the MAI of EAP, the other aspects of EAP instruction than MAI, and the merits and demerits of MAI.

Questions of the Study

The study sought to answer the following questions to attain the aims set above:

First, to statistically assess the effectiveness of MAI in enhancing the EAP reading performance of FoE EFL freshers, the first three questions were manipulated:

1. What are the aspects of EAP reading instruction addressing the skills of 'reading for gist', 'reading for specific information', 'reading for detailed understanding', and 'extracting the meaning of keywords'?
2. How far is MAI effective in enhancing the reading skills of the FoE EFL freshers?
3. How far is MAI, as compared to paper reading instruction, effective in enhancing the EAP reading skills of FoE EFL freshers?

Then, to descriptively check students' satisfaction with the instruction as the descriptive sign of the intervention's effectiveness, the following three questions were manipulated:

4. How far are students satisfied with the MAI of EAP reading?
5. What are the merits and demerits of MAI of EAP reading?
6. How far are students satisfied with the 'other' instructional aspects of the EAP reading instruction?

Significance of the Study

Besides being the first study that uses MAI for the enhancement of EAP reading skills, to the best of the researcher's knowledge, this study also aided in the following:

1. students' *Key* EAP/ educational vocabulary acquisition needed for their future jobs.
2. improvement of the *basic* reading skills of reading for gist, reading for specific information, reading for detailed understanding, and extracting the meaning of keywords.
3. students' engagement in *academic* discussions related to the educational topics in the activities.
4. assessing students' views about or satisfaction with MAI and evaluating the other instructional aspects of EAP reading instruction than the mobile-assisted one, which were both highly needed, as proven earlier.
5. identifying both the merits and demerits of MAI in the Egyptian context.

Delimitations of the Study

This study was delimited to the dependent variable EAP reading performance which reflected the acquisition of four reading skills: reading for gist, reading for specific information, reading for detailed understanding, and extracting the meaning of keywords as proven in statistical terms.

The MAI involved the use of the following Mobile features: E-book Applications, Reading Mode, Text-To-Speech, PDF and Document Readers, Web browsers, Note-taking Apps, Offline Reading, and Accessibility Features.

The study was delimited to 241 Suez Canal University FoE EFL freshers at the FoE in Ismailia. The participants belonged to the following six majors: Arabic, Educational Psychology, Home Economics, the German language, French Language, and music Education.

The brands of the mobile phones used in the experiment were Infinix X656, Infinix X650C, Infinix X6812, iPhone 11, Readme Note 8, Readme Note 8 pro, iPhone 14, Samsung A21, Samsung S24 Ultra, Samsung Galaxy A15, Realme R11, Realme C51, Oppo A78, Readme 12, Infinix SMART 8, Realme C53, Readme A2+, iPhone XS Max, iPhone 8 Plus, Realme 6i, and Readme 13C. The tablet versions are Galaxy Tab A 10.1, and Samsung Tab A9.

In the following sections, the recent literature on EFL reading, as the broad source of EAP reading in EFL settings, EAP, the recent strategies used to enhance reading performance in the Egyptian context, the processes involved in EFL reading, mobile-assisted reading, and the benefits of MAI will be discussed to support the rationale for conducting this study. Then, the method, results, discussion, and conclusions based on the study's findings will be addressed.

Definition of Terms

In the study, the procedural definitions that were adopted were as follows:

a. Mobile-Assisted Instruction (MAI)

The procedural definition of MAI is similar to that of Drabløs (2008). Thus, it refers to the use of mobile devices, such as smartphones and tablets, to support and enhance students' learning tasks (activities). However, a particularity of this study was that MAI involved students' downloads of EAP reading material and incorporated mobile phone and tablet features to facilitate learning. MAI in the present study also implied students' use of mobile

browsers to access learning materials, creation of personalized learning experiences, access to internet features to find meanings of vocabulary, and adjustment of their mobile environment to be appropriate for reading and learning either using useful applications or not, and utilization of multimedia content to reach useful learning.

b. English for Academic Purposes (EAP) Reading Performance

In this study, EAP reading performance refers to the acquisition of key reading skills used much academic settings and needed by students. It focuses on developing students' ability to read and comprehend academic texts, such as research articles, journals, and other materials normally used in higher education. EAP reading aims to enhance students' skimming, scanning, vocabulary, and comprehension skills to effectively navigate academic texts and fully comprehend them, similar to the definition of Linglin and Siting (2023).

Literature Review

To some extent highlight the meaning of EAP, see the research focus regarding the instructional strategies and approaches used for enhancing which type of reading particularly in the Egyptian context, probe the processes involved in reading, explore mobile-assisted reading and related benefits of MAI, and recognize the features on mobile phones and tablets for reading, the literature was surveyed for these purposes. This survey is reflected below.

EAP Reading

According to Bayraktar Balkır (2023), Du and Zhou (2019), and Zhang and Xie (2023), EAP reading is an indispensable component of English language instruction in academic settings. It focuses on developing students' ability to read and comprehend academic texts, such

as research papers, journals, and other materials commonly used in higher education. EAP reading aims to enhance students' thinking, vocabulary, and comprehension skills to effectively navigate academic readings and contribute to academic discussions. Searching for studies on EAP reading in the Egyptian context, there appeared none, to the best of the researcher's knowledge. This finding suggests that this area needs investigation and focus by researchers.

EFL Reading Strategies in the Egyptian Context

The studies conducted in Egypt focused on enhancing EFL reading skills among students through various strategies. These strategies included the use of 'graphic organizers', 'the flipped classroom learning model', 'the SQ4R Strategy' (Survey, Question, Read, Reflect, Recite, and Review Strategy), a 'mind habit-based program', and 'the read, encode, annotate, and ponder (REAP) strategy'. Each study targeted different groups of students in secondary schools or certain higher education faculties, showing positive results in developing EFL reading comprehension skills. The following analysis summarizes and comments on these strategies:

a. **Graphic Organizers:** A study at AL-Shaheed Muhammad Ibrahim Al-Baqash *Secondary* School used 'graphic organizers' to develop EFL critical reading skills among first-year *secondary-stage* students (Rizk, 2021). The results indicated that Graphic Organizers were effectively useful in enhancing the critical reading skills of the students.
b. **Flipped Classroom Learning Model:** Another study at the Faculty of *Specific* Education applied the 'flipped learning model' to develop reading comprehension skills among sophomores (Mahmoud, 2020). The findings demonstrated that Flipped Learning significantly helped students improve their reading comprehension skills.

c. **SQ4R Strategy:** Research conducted at Quesna Formal Language School focused on the SQ4R to support the EFL reading comprehension skills of *Secondary* School Students (Mohamed, 2020). The study indicated that the 'SQ4R' strategy was effectively useful in improving the students' reading skills.

d. **Mind Habits Based Program:** A study at El-Azhar Model *Secondary* Institutes performed a mind habit-based program for developing EFL critical reading skills among second secondary-stage students (Abd El Qader, 2023). The results significantly indicated a positive effect on enhancing students' critical reading skills.

e. **Read, Encode, Annotate, and Ponder (REAP) Strategy:** A research project at Abu Bakr Al Siddik Secondary Combined School utilized the REAP strategy to enhance EFL reading comprehension and critical thinking disposition of fresher *secondary* school students (Elmansi, 2023). The results revealed a significant improvement in the reading comprehension of students and their critical thinking disposition via the use of the REAP strategy.

To summarise, the studies in Egypt have shown that various strategies, such as graphic organizers, flipped learning, the SQ4R strategy, mind habits-based programs, and the REAP Strategy are effective in developing EFL reading skills among students in various educational settings. However, the vast majority of studies are focused on 'secondary-stage' education or 'specific education', not 'general education' at the university level, as will also be extended in later studies.

Other studies in the Egyptian context also provide valuable insights into the EFL reading comprehension of Egyptian university students. The key findings were as follows:

a. **Explicit Instruction in Reading Strategies:** Research demonstrates that *explicit* instruction in text structure and reading *strategies* has positive effects on the reading

comprehension of Egyptian university freshers studying EFL. Also, results prove that training in text organization led to improved reading comprehension outcomes (Abd-Elmoety, 2013). However, this study focused on neither MAI nor EAP reading.

b. **Infographic-Based Website Design:** An investigation on the effects of infographics-based news website design for developing reading comprehension of economic issues among *specific*-education Egyptian students shows that different types of infographics are related to various comprehension levels, with specific clues that interactive infographics are linked to deductive comprehension (e.g. Mohamed, 2020).

c. **Cognitive & Metacognitive Strategies Training:** Research also shows a study aiming to enhance EFL inferential and critical reading comprehension skills of first-year *Pharmacy* Egyptian students. The results indicate that a proposed unit based on cognitive and metacognitive strategies training is significantly effective in enhancing overall reading comprehension and sub-skill-specific comprehension (Helal, 2018).

d. **Difficulties in Reading Comprehension:** Research highlights the challenges encountered by Egyptian and Indonesian EFL university students in reading comprehension, i.e. understanding word meanings, making long sentences, eliciting main ideas, and making inferences (Baiti & Sofa, 2023). Research interprets the factors leading to these difficulties. These factors included inappropriate language level, knowledge, interest, focus, and lengthy text (Baiti & Sofa, 2023).

These studies mentioned above collectively emphasize the importance of tailored instructional strategies, explicit teaching methods, and the use of visual aids such as infographics to enhance reading comprehension skills among Egyptian university students learning EFL. It appears that no study addresses the university-level *EAP* reading in particular.

Processes involved in EFL Reading

The processes in EFL reading comprise a complex interplay between various cognitive activities. Research has shown that EFL learners engage in comprehension monitoring, planning, language monitoring, narration monitoring, and continuity evaluation during the reading-writing connection (Ye & Liu, 2023). Additionally, the importance of reading monitoring is highlighted as a significant factor impacting skill integration in EFL-integrated writing tasks (Ye & Liu, 2023). Strategies such as previewing the text before reading, summarizing after reading, and employing decoding strategies like recognizing word parts and familiar spelling patterns play crucial roles in enhancing reading comprehension (PDST, 2022). Moreover, the effectiveness of reading strategies in EFL contexts varies among high-proficiency and low-proficiency readers, with higher-proficiency readers demonstrating more effective strategy use (Bedle, 2017). Teaching EFL reading involves not only focusing on vocabulary development but also on teaching essential reading skills like surveying, skimming, scanning, inferencing, predicting, and guessing to improve reading comprehension (TEFL Educator, 2021). The integration of these processes and strategies is vital for EFL learners to navigate and comprehend texts effectively.

Skimming and Scanning

Skimming and scanning are essential reading strategies that play a *significant* role in improving the reading skills of students. Skimming involves quick reviewing of a text to grasp the main idea, while scanning is used to locate specific information within a text (Agustin et al., 2023; Fatmawan et al., 2023). These techniques are proven to be effective in enhancing students' comprehension in reading tasks, especially in speed reading and reading improvement (Fatmawan et al., 2023). Studies have shown that integrating tools like Kahoot! and Telegram

into language teaching can positively impact students' skimming and scanning skills, leading to a better understanding of content and improved learning outcomes (Mala et al., 2023; Syaiful, 2023).

Approaches to teaching EFL reading

Surveying approaches to teaching EFL reading, it is found that educators often employ various strategies to enhance students' skills embedded. These strategies include Interactive Reading, Task-Based Learning (TBL), Content-Based Instruction (CBI), integration of CBL and technology, Extensive Reading, Blended approach, Intensive approach, critical thinking, and Technology Integration development. These strategies are detailed below:

a. **Interactive Reading:**

This approach involves engaging students in activities, discussions, and tasks related to the reading material to encourage comprehension and critical thinking outcomes. Basuki et al. (2024) used a telegram vocabulary robot to facilitate basic vocabulary acquisition. The author only describes the program. Qaddumi & Smith (2024) implemented a learning management system and the study results revealed positive effects on both language acquisition and students' attitudes towards learning EFL. Another study proved the effects of interactive pronunciation on reading (Alharthi, 2024). Brakhmetova (2024, p. 85) examined teachers' adoption of online sources, electronic platforms, and interactive media in teaching. The study highlights the benefits of such technologies in enhancing student engagement, self-learning, and elevated language proficiency. The study also highlights the challenges met by teachers in using technology, such as resource limitations and the need for training.

b. **Task-Based Learning:**

In this approach, learners perform tasks that involve reading as a method to learn language skills. Tasks are planned to be meaningful and pertinent to real-life situations. There is a bulk of recent research proving the effectiveness of this approach, e.g. Amer & Demirel (2024), Duong (2022), Mehri et al. (2017), Nguyen (2022), Radwan (2024), and Wang (2023).

c. Content-Based Instruction (CBI):

This approach integrates language learning with subject matter content, allowing students to learn language skills while studying a specific topic or subject, and its principles are similar to those of communicative language teaching (Qizi et al. (2022). It has been widely proven to improve reading comprehension (Azzuhra, 2023) and vocabulary (Wiam, 2023). It has caused a shift in teaching and learning (Sultan, 2023). Features of this approach are stated by Qizi et al. (2022, p. 1132-1134) below.

- ***Reality accord:*** the approach used real resources, such as essays, books, and videos.
- ***Meaning focus:*** Stress is set on learners comprehending the content meaning instead of grammar only.
- Learner-centeredness: the approach is centered around the learner, allowing for active engagement.
- ***Scaffolding:*** learners gain aids, such as vocabulary lists and knowledge queries to enhance understanding.
- ***Cultural awareness:*** the approach addresses a focus on cultural understanding of the English language.
- ***Flexibility:*** the approach copes with different learning environments, such as classrooms and virtual learning.

From another perspective, when integrated with technologies, it is found that CBI reading, which can be linked to EAP reading, has substantial effects on students' reading. This is evident in Srichote et al. (2023) and Abdurasulova (2024). It is also originally found that CBI raises students' motivation (Abdulaal et al., 2024; Amer & Demirel, 2018; Fasih, 2023; Malika, 2024).

Other studies, e.g. Ali et al. (2022), Hunt and Beglar (2005), Mulatu and Regassa (2022), and Villanueva de Debat (2006) clarify other approaches to teaching reading than those surveyed earlier. By name, extensive reading, extensive approach, and intensive approach were found to play roles. The following describes those three approaches:

a. ***Extensive Reading:*** this approach means encouraging students to read a large quantity of content at an appropriate level to improve reading vocabulary, fluency, and overall comprehension. One study relatively related to reading improvement is Goudjil (2024). It specifically addressed the effects of extensive reading on acquiring vocabulary and found positive ones. Also, it is mentioned that when designing EFL reading activities, a combination of intensive and extensive reading approaches is recommended to enhance literacy skills, critical thinking, and creativity among students (Ferrer and Staley, 2016).
b. ***Blended approach:*** being quite a new approach, it integrates the old way of instruction with computer technologies. Studies express its importance in language learning and teaching (Deniz, 2024; Hunt & Beglar, 2005; Mulatu & Regassa, 2022; Villanueva de Debat, 2006).
c. ***Intensive approach:*** Ali et al. (2024) offer a survey on the three approaches: intensive reading, extensive reading, and blended reading. Mulatu and Regassa (2022) offer a set of practical steps to help low-level reading learners perform better. Hilaikal et al. (2023) used

the SQ3R method with intensive reading and found that the related use was significant in improving the learners' reading.

Briefly, the extensive reading, the blended approach, and the intensive reading provide the opportunity for learners to practice reading and benefit. Grounds for this claim could refer to the proven facts that these approaches aim to create a dynamic and engaging learning environment that fosters language development through reading activities.

Research particularly provides insights into diverse further approaches to EFL reading instruction. The main approaches in recent studies highlight critical thinking development, 'technology integration', and the 'need for more research'.

a. ***Critical Thinking Development:*** Another study focuses on describing and enhancing critical thinkers' reading ability through new teaching mechanisms such as asynchronous web-based collaborative and question-answer relationship approaches (Mohammadi et al., 2022).
b. ***Technology Integration:*** Ali et al. (2023) explore the perceptions of Pakistani pre-university EFL learners regarding intensive and extensive reading approaches, stressing the positive impact of 'technology integration' in these approaches on enhancing language skills including reading and speaking and, thus, making learners autonomous readers.

Research also highlights a need for further research in the area of reading (Ali et al., 2022), which partly makes a rationale for the present study.

To summarize, these studies collectively emphasize the significance of diverse approaches for enhancing EFL (not EAP, reading), including critical thinking development, technology integration, and the need for unceasing research to boost EFL reading instruction.

The importance of technology integration is particularly significant. It was also concluded that no specific recent Egyptian studies were related to using ‘MAI for enhancing EAP reading’.

Mobile-Assisted Reading

Mobile-assisted reading is a growing area of research and practice in language learning. Research has shown that MAI can have a ‘positive impact’ on certain components of language learning, including vocabulary acquisition, reading comprehension, and cognitive load.

One study found that a mobile-assisted vocabulary learning approach using a smartphone application enhanced EFL students' vocabulary retention and second language (L2) learning (Okumuş Dağdeler, 2023). Another revealed that mobile-assisted reading can also develop a *critical* reading of university students (Muhammad et l, 2020). Another concluded that a mobile-assisted environment for learning had a significant effect on academic achievement and acceptance of mobile learning tools among EFL students (Ozer & Kılıç, 2018).

However, there are also challenges associated with mobile-assisted EFL reading. For example, research has shown that participants' reading strategies in mobile-assisted EFL reading were less effective than those during paper reading (Yu et al., 2022).

To address these challenges, researchers and practitioners have suggested various approaches to mobile-assisted EFL reading. These approaches include using a contribution-oriented self-managed mobile learning approach to improve EFL (not EAP) learners' vocabulary retention and second language learning and using a mobile game-based English vocabulary rehearsal system based on portfolio analysis (Okumuş Dağdeler, 2023).

Overall, MAI to enhance EFL reading is a promising area of research and practice in language learning which is not given due interest, particularly in the Egyptian context. Therefore, more research was needed to fully understand the potential ‘benefits' and 'challenges’ associated with the area.

Benefits of Mobile-Assisted Reading

Mobile-assisted reading can support EFL readers by allowing them to access a wide range of authentic texts, increasing their motivation and engagement, and offering opportunities for personalized, self-directed, collaborative, and autonomous learning. Dong et al. (2022), Imam and Kabir (2020), Jeong (2022), Lin (2014), Lin et al. (2020), and Nasr and Abbas (2018) record the specific ways in which mobile-assisted reading supports EFL readers by providing:

1. ***Access to Authentic Texts:*** Mobile devices provide EFL readers with access to a wide range of authentic texts, such as news articles, blogs, and academic papers. This can help them develop their reading skills and increase their vocabulary in a more authentic and contextualized way (Lin, 2014),
2. ***Motivation and Engagement:*** Mobile-assisted reading is claimed to increase motivation and engagement by providing learners with more control over their learning and offering more personalized and interactive experiences. For instance, Dong et al. (2022) state that learners can choose the texts they choose, set their objectives, and track their achieved progress (Lin, 2020). MAI positively affects students’ anxiety, willingness to learn, and self-efficacy (Ibid) and it is also claimed to influence students’ perceptions of reading (Imam and Kabir, 2020).

3. ***Personalized and Self-Directed Learning:*** Mobile-assisted reading can also offer EFL readers opportunities for personalized and self-directed learning. For example, they can use mobile applications to create their vocabulary lists, make notes, and highlight important sections in the text (Jeong, 2022).
4. ***Collaborative Learning:*** Mobile-assisted reading is claimed to facilitate collaborative learning by aiding learners to share their thoughts and ideas with others. For instance, they can use social media platforms or mobile apps to discuss the texts they are reading, share their opinions, and provide feedback to each other (Lin et al., 2020).
5. ***Autonomous Learning:*** Mobile-assisted reading is also seen to support autonomous learning by providing learners with the tools and resources they need to learn independently. For instance, Nasr & Abbas (2018) point out that they can use mobile apps to access dictionaries, grammar guides, and other learning materials and resources (Nasr & Abbas, 2018). The aforementioned benefits, besides the MAI features below, urged the researcher to use MAI to enhance reading.

Features on Mobile Phones and Tablets for Reading

MAI features can enhance the reading experience on mobile phones, making it more comfortable, efficient, and enjoyable. According to Lesani et al. (2019; 12-13), the features of mobile phones that can be used for reading include:

a. ***E-book Applications:*** Many mobile phones are designed with e-book apps like Kindle, Kobo, or Google Play Books that allow users to download and read e-books. These applications have features, such as night mode, font size adjustment, and bookmarking.

b. ***Reading Mode:*** Some mobile phones have a built-in reading mode that optimizes the display for reading comfort. This mode reduces blue light emission, adjusts font sizes, and boosts readability.

c. ***Text-to-Speech:*** Many mobile phones have Text-to-Speech functionality which reads out text aloud. This feature is particularly useful for people with visual impairments or those preferring to listen to content.

d. ***Audio Books:*** Mobile phones can play audiobooks, allowing users to listen to favorite stories or educational content on the move.

e. PDF and Document Readers: Mobile phones open and read PDF files, making it easy to access and read documents, articles, and reports.

f. ***Web Browser:*** Mobile phones have web browsers used to access online content, including articles, blogs, and websites.

g. ***Note-taking Apps:*** Mobile phones have note-taking applications, such as Evernote, OneNote, or Simplenote that allow users to take notes and organize their thoughts.

h. ***Accessibility Features:*** Many mobile phones have accessibility features like zoom, font size adjustment, and high contrast mode that help users with visual impairments read more comfortably.

i. ***Offline Reading:*** Many e-book applications and reading apps allow users to download content for offline reading, making it possible to read without an internet connection.

In summary, many approaches have been addressed in the literature. Of them, MAI of reading is concluded to support EFL readers by providing them with access to authentic texts, increasing their motivation and engagement, offering opportunities for personalized and self-

directed learning, facilitating collaborative learning, and supporting autonomous learning. Mobile-assisted reading further supports EFL readers by letting them access a wide range of authentic texts, including news articles, blogs, and academic papers. This can help them support their reading skills and increase their vocabulary in an authentic and contextualized way. Reading on mobile devices can be boosted by many mobile features such as E-book Apps, Reading Mode, Text-to-Speech, Audio Books, PDF and Document Readers, Web browsers, Note-taking Apps, Accessibility Features, and Offline Reading.

Research has also shown that using mobile devices for reading improves students' reading competence by activating their schemata or prior knowledge and equipping them with the skills required to understand complex texts (Valizadeh, 2022). A study conducted in Saudi Arabia found that using mobile devices for reading enhances EFL learners' reading practices, as the availability of internet activities and electronic dictionaries lets them be exposed to authentic readings and practice reading (Hazaea, & Alzubi, 2016).

Moreover, a study examining the efficacy of MAI in improving learners' reading skills indicates that the use of metacognitive strategies, such as self-questioning and summarizing, can significantly enhance learners' reading comprehension (Sudiatama et al., 2023). The study also found that MAI was effective in adapting to the new teaching-learning process, particularly at the time of a pandemic.

Therefore, it is concluded that mobile-assisted reading can support EFL readers by providing them with access to authentic texts, improving their reading competence, and enhancing their vocabulary acquisition or learning. The use of mobile devices for reading activates prior knowledge and equips learners with the skills necessary to understand complex texts. Additionally, the use of metacognitive strategies in MALI significantly improves learners' reading text comprehension.

Above all, although there were many strategies enhancing the EFL reading performance, there was no study was found to address the MAI of EAP reading in the Egyptian context.

Method

Design

The study adopted a quasi-experimental approach, encompassing an experimental group of participants in an attempt to improve their reading (G1) and a control group (G2). G1 underwent mobile-assisted EAP reading instruction while G2 was given the same instruction in traditional form (i.e. reading from paper without 'mobile' use). A pre-post-test was designed and administered. Before the instruction of both groups, an EAP reading pre-test (i.e. prepared and designed by the researcher) was administered, and the same test (post-test) was administered past the instruction. An evaluation instruction form was designed and conducted on the experimental group after the instruction.

Participants

The participants of the study were 1st-year freshers enrolled in the 'EFL' course in the second term of 2024. It is worth mentioning that, unlike the educational system in many Western countries, the Egyptian one has two terms only. The participants studied EAP in the

form of EAP activities ‘for the first time’ in the EFL course, as the course was flexible in nature. The participants came from various social and economic backgrounds mainly representing the population of the governorate of Ismailia. Their total numbers were 241 participants divided into 117 in G1 and 124 in G2. As mentioned earlier, the students majored in the six majors of Educational Psychology, Home Economics, German Language, Arabic Language, French Language, and Music Education at the FoE in Ismailia.

Instruments of the Study

Two instruments were prepared, designed, and conducted by the researcher: 1. An EAP reading pre-post-test to help statistically assess both the effectiveness of MAI and the effectiveness of MAI compared to that of paper reading and 2. An instruction evaluation survey to descriptively confirm the effectiveness of MAI, if any, and to check the merits and demerits of MAI in the participants’ views.

1. The Reading Pre-Post-Test

To answer the study questions 2 and 3, an EAP reading pre-post-test was designed and administered to both G1 and G2. It aimed to assess the EAP reading skills of reading for gist (skimming), reading for specific information (scanning), reading for detailed understanding, and extracting the meaning of keywords. The test consisted of four EAP Intermediate-level reading passages with questions assessing the four skills with four Wh-question assessing the gist, numerous items asking for specific information, and several gap-fills and true/ false questions assessing detailed understanding. The test also included sixteen or more questions asking for key vocabulary meanings. The topics of the four readings were ‘The Art of

Teaching', 'Curriculum Development', 'Lesson Planning', and 'The Interactive Whiteboard.' The total test score was 79 marks, with three of the four readings deserving 20 marks and the remaining one nineteen. The test time was 2.5 hrs.

The **validity** of the initial test was considered by jurying it. Three professors in Curriculum and Instruction of English examined the test for **Construct** Validity. They checked it and had no comments for modifications. To check its **reliability**, a computerized **Split-Half** method was used. First, the exam items were prepared with their scores. Then, the odd items with their scores were separated from the even items with their scores. The Brown-Spearman correlation between the two sets of scores was calculated. The coefficient was 0.87, which meant the test was reliable, as the coefficient was above 0.7, for the acceptable value was 0.7 or above, according to Kılıç (2016). The results of the test are handled in the Results section to come. (The final form of the test is in Appendix A.)

2. The Instruction Evaluation Survey

To answer study questions 4, 5, and 6, a survey was prepared, designed, and conducted by the researcher to check the effectiveness of MAI in enhancing the EAP reading performance of the participants by assessing 1. their satisfaction with MAI, 2. the merits and demerits of MAI, and 3. the other aspects of instruction than mobile-assisted. Thirty-two items were prepared, twenty-nine of which had the Likert scale: Never, Occasionally, Sometimes, Often, and Always (with points from 1 to 5), and three questions were open-ended questions asking participants to provide more information. Therefore, the survey was both scale-type and questionnaire-type to gather descriptive data from the participants. It is recommended for evaluation surveys to use both types because they provide both numerical and narrative data to give whole-

picture feedback on instruction (Soto-Estrada et al., 2018). Items 1, 2, 5, 10, 26, and 27 were linked to assessing the students' views about (satisfaction with) the MAI of the EAP activities and were thus used to answer the fourth study question. Items 28, 30, and 31 were used to answer the fifth study question. The remaining items, (3-9,11-25, 29, and 32) were related to the other aspects of the EAP instruction than mobile-assisted. These aspects included views about the instructor, the instructional objectives, the learning-teaching environment, the teaching methods, assessments, tasks, assignments, general benefits, and student engagement. These items were used to answer the sixth study question.

To prepare the survey items, the guidance offered by Soto-Estrada et al. (2018), DaRosa et al. (1996), and Gravestock and Gregor-Greenleaf (2008) were followed. Their item areas were considered in designing the survey items. These areas included goals, teaching methods, student engagement, the efficacy of the instructor, teaching activities, teaching methods, learning gains, assessment, instruction effectiveness, and general satisfaction.

To ensure the **Construct validity** of the instrument, the survey was submitted to three professors in English Education. No changes were recommended, which meant the survey was valid for the items. The **reliability** was calculated by the 'Cronbach Alpha coefficient formula'. First, a sample of 30 respondents was selected to answer the scaled items. Then, the SPSS (Statistical Package for Social Sciences) software was used to calculate Cronbach's alpha coefficient. The formula considers the number of items and the ratio of the sum of item variances to the total score variance, according to (Santos, 1999). The coefficient resultant was %81.4, which led to the conclusion that the survey was reliable. Santos (1999) states that if the coefficient is 0.7 or above, this approximation to the value of 1 means the reliability of the items used.

Four '**assessment criteria**' were set for interpretation of the most probable results: 1. if the majority of respondents chose either 'Often' or 'Always' or both, this choice would be an

indication of item acceptance. 2. if the majority of respondents chose either 'Never' or 'Occasionally' or both, this choice becomes an indication of item rejection. 3. If they chose the 'Sometimes' choice, this would indicate an unsettled choice. 4. If they chose, the first three options on the scale, this choice would mean item rejection. The final survey is found at https://forms.gle/JGzoRqcVssw9mLGi7 It was sent electronically via Google Forms. The results are displayed electronically at https://forms.gle/bme8FNqjaXpEZtsn9 (To open the two links, a Google Account must be opened first.) The results were later obtained and statistically tabulated.

MAI of EAP Reading

The MAI was carried out through EAP activities remedying the four skills of reading for gist, reading for specific information, and extracting the meaning of keywords in an EAP text were planned and designed by the researcher. Construct Validity of the activities was ensured by submitting them to three jurors whose specialty was English Curriculum and Instruction and their guidance was followed regarding the distribution of the reading skills over the readings. The following objectives of the activities had been set to be achieved by the participants by the end of each lesson:

1. to extract the main idea of the topic presented in each text

2. to survey each text and find answers to specific information questions

3. to produce answers to all objective/ detailed comprehension questions on each text

4. to extract the meanings of keywords within each text, using any clues found

The topics in the activities covered were Learning and Instruction, Assessment Types and Evaluation, Micro-Teaching, Curriculum Planning, Curriculum Organization, Curriculum

Content, Curriculum Design & Development, Curriculum Transaction, Lesson Presentation, Questioning, Error Correction, Supportive Error Correction, Stages of Questioning, Questioning, Stages of Questioning, The Key Elements of Lesson Presentation, and The Basics of Lesson Presentation.

Regarding the other aspects of instruction, Table (2) reflects how the schedule, assessment, topic, tasks, and teaching hours were implemented over the experiment time:

Table 2

Schedule, assessment, topic, tasks, and teaching hours

Week & Session no.	Topics	Tasks	Contact Hours
Week One			
Session One	Orientation & Pretest	Individual & group work (G.W.) &	3
Session Two	Learning and Instruction	student presentation (S.P.)	2
Session Three	Assessment Types and Evaluation	G.W., Pair work (P.W.), & S.P.	2
Week Two			
Session One	Micro-Teaching	Individual, student discussion (S.D.), & S.P.	2
Session Two	Curriculum Planning	G.W., S.D., & S.P.	2
Session Three	Curriculum Organization	G.W., S.D., & S.P.	2
Week Three			
Session One	Curriculum Content	G.W. & S.P.	2
Session Two	Curriculum Design & Development	G.W. & S.P.	2

Week & Session no.	Topics	Tasks	Contact Hours
Session Three	Curriculum Transaction	Individual & P.W.	2
Week Four			
Session One	Lesson Presentation	Individual, P. W., G.W., S.D. & S.P.	2
Session Two	Questioning	Individual, P. W., G.W. & S.P.	2
Session Three	Error Correction	Individual, P. W., S.D., G.W. & S.P.	2
Week Five			
Session One	Supportive Error Correction	Individual & P.W.	2
Session Two	Stages of Questioning	Individual, S.P. & P.W.	2
Session Three	Questioning	Individual, P. W., S.D., G.W. & S.P.	2
Week Six			
Session One	Stages of Questioning	Individual, P. W., & G.W.	2
Session Two	The Key Elements of Lesson Presentation	Individual, P. W., G.W. & S.P.	2
Session Three	The Basics of Lesson Presentation	Individual and P.W.	2
Week Seven	EAP Reading Post-Test		2.5

This analysis offered the answer to the first study question "1. What are the aspects of EAP reading instruction addressing the skills of 'reading for gist', 'reading for specific information', 'reading for detailed understanding', and 'extracting the meaning of keywords'?"

Hypotheses of the Study

Based on the literature reviewed in terms of the positive effects of MALI, the following hypotheses were tested, and they were expected to be confirmed:

1. There is a statistically significant difference between the mean scores of the experimental group in the EAP reading pre-posttest in favor of the group's post-test mean score.
2. There is a statistically significant difference between the mean score of the experimental group and that of the control group in the EAP reading posttest in favor of the experimental group's mean score.

Two Groups' Leveled Reading Performance on the Reading Pre-Test

To ensure the students were largely equivalent in their EAP reading levels in both the experimental and control groups, a parametric statistics *t*-test was administered to confirm there were no differences in mean scores between the two groups. The results are shown in table (3) below.

Table 3

The Two Group Levelled Reading on the Pre-Test

Mean Difference	Standard Deviation Difference	T-Value	Probability of p	%95 Confidence interval of the difference	
				Lower	Upper
0.596	1.434	0.416	0.339	-2.229	3.421

As shown in Table (3), The two-group mean difference is 0.596, and the standard deviation difference is 1.434. The *t*-value is 0.416, and the probability of *p* is 0.339. %95 Confidence interval of the difference is -2.229 (Lower) and 3.421 (Upper). Based on these statistical values, the difference in mean score is marginal compared to a total test mark of eighty-one. The difference between standard deviations (1.434) around the two-group means

is extremely small. t-value (0.416) is not significant, and the p-value (0.339) is 'statistically non-significant', according to Cohen (1988). %95 Confidence interval of the difference includes the 'zero' value within its range. Given all the previous data and related interpretations, according to Cohen (1988), the null hypothesis must be accepted. It is therefore concluded that there was no statistically significant difference at <0.05 statistical significance level between the experimental group's mean score and that of the control group on the EAP reading pre-test. As a result, the two groups were considered largely equal in their EAP reading performance.

Statistical Treatment Method

The SPSS Software (SPSS 28 Version) for parametric statistics was used. It is known that parametric statistics is utilized when the data follows a normal distribution, as in the present study the case. *T*-test with probability of power (*p*) and effect size (Cohen's *d*) resultants were used. They were used to determine statistically significant differences in means and the effect size levels, in compliance with Cohen (1988).

Results

To answer the second study question **"**2. How far is the mobile-assisted instruction effective in enhancing the EAP reading skills of the FoE EFL freshers?", the t-test result analysis in Table (4) and the related interpretation provides the answer statistical terms:

Table 4

Statistical significance of the mean difference and effect size for G1 on the EAP Reading pre-posttest

Pre-test mean	**Posttest mean**	**Mean difference**	**Std. deviation**	**t-value**	**Probability of p**	**Cohen's d %95 confidence interval**
						Lower Upper

46.27	72.85	-26.308	9.345	-30.450	<0.01	-28.019	-24.596

Table (4) shows the pre-test mean, post-test mean, mean difference, standard deviation, *t*-value, probability of *p*, and % 95 confidence interval of the difference. They are 46.27, 72.85, -26.308, 9.345, -30.450, <0.01, and -28.019 (lower) and -24.596 (upper), respectively. As implied in Table (4) above, there is a considerable mean difference which can be referred to as the intervention used. The standard deviation shows a big difference from the mean in participants' marks, indicating much variance in their scores.

The t-value (-30.450) in Table (4) above indicates that the mean difference is significant and the probability of *p* (<0.01) informs of a statistical significance at <0.01 level (Cohen, 1988). The %95 confidence interval of the difference indicates the acceptance of the alternative hypothesis because the range of the lower and upper limits does not include the zero value, which suggests the acceptance of the alternative hypothesis, according to Cohen (1988). Then, the first study hypothesis "1) There is a statistically significant difference between the mean scores of the experimental group in the EAP reading pre-posttest in favor of the group's posttest mean score" is confirmed at **< 0.01** statistical significance level. In descriptive words, this confirmation informs of the finding that MAI is effective in enhancing the EAP reading skills of FoE EFL freshers.

To identify the effect size level, Table (5) shows the 'point estimate' for the pre-post-test occasions.

Table 5

The effect size for G1 EAP reading pre-post-test

G1	**Point estimate**	**%95 confidence interval**	
		Lower	Upper
Cohen's d value			

	2.815	-3.218	-2.409

Table (5) displays the point estimate (2.815) and the %95 confidence interval which has the range of -3.218 and -2.409. According to Cohen (1988), the point estimate (2.815) indicates a *weak* effect size, and the %95 confidence interval whose range is -3.218 and -2.409 suggests the acceptance of the alternative hypothesis which in the present case the hypothesis related to the present study question mentioned earlier.

Of the statistical analysis and the following interpretation related to data in Tables (4) and (5), it is clear that MAI was effective in enhancing the EAP reading skills of FoE EFL freshers 'to a *weak* extent'. This answers the second study question "2. How far is the MAI effective in enhancing the reading skills of the FoE EFL freshers?"

To answer the third study question "3. How far is the MAI, as compared to paper reading instruction, effective in enhancing the EAP reading skills of FoE EFL freshers?", a comparison between the two groups' *t*-test results on the post-test is shown in Table (6) below.

Table 6

The two groups' t-test results on the post-test

G1 Mean	G2 Mean	Mean difference	Std. deviation difference	t-value	Probability of p	Cohen's d %95 confidence interval	
						Lower	Upper
72.58	69.98	2.597	-0.434	3.069	0.01	0.930	4.264

Table (6) shows the post-test mean for G1, the post-test mean for G2, the mean difference, standard deviation, *t*-value, probability of *p*, %95 confidence interval of the difference. They are 72.58, 69.98, 2.597, -0.434, 3.069, <0.01, and 0.930 (lower) and 4.264 (upper), respectively. As clear in Table (6) above, there is a mean difference (2.597) in favor of the experimental group's mean score. The

standard deviation shows almost no difference from the mean in participants' marks, which means their marks were very similar.

The *t*-value (3.069) in Table (6) above indicates that the mean difference is significant and the probability of *p* (0.01) informs of a statistical significance at 0.01 level (Cohen, 1988). The %95 confidence interval of the difference indicates the acceptance of the alternative hypothesis because the range of the lower and upper limits does not include the zero value, which suggests the acceptance of the alternative hypothesis. Then, the second study hypothesis "2. There is a statistically significant difference between the mean score of the experimental group and that of the control group in the EAP reading posttest in favor of the experimental group's mean score" is confirmed at **0.01** statistical significance level.

To identify the effect size level, Table (7) below shows the point estimate for the G1 and G2 post-test occasions.

Table 7

G1-G2 Effect size on the post-test

G1-G2	Point estimate	%95 confidence interval	
		Lower	Upper
Cohen's d value	0.396	0.140	0.650

Table (7) above demonstrates the point estimate (0.396) and the %95 confidence interval which has the range of 0.140 and 0.650. According to Cohen (1988), the point estimate (0.396) indicates a *very weak* effect size and the %95 confidence interval whose range is 0.140 and 0.650 suggests the acceptance of the alternative hypothesis, which is in the present case: "There is a statistically significant difference (i.e. at 0.01 statistical significance level) between

the mean score of the experimental group and that of the control group in the EAP reading posttest in favor of the experimental group's mean score."

Of the statistical analysis and the following interpretation for Tables (6) and (7), it is clear that MAI, compared to paper reading instruction, is more effective in enhancing the EAP reading skills of FoE EFL freshers 'to a *very weak* extent'. This finding answers the third study question "3. How far is the MAI, as compared to EAP paper-reading instruction, effective in enhancing the EAP reading skills of FoE EFL freshers?"

To answer the fourth study question "4. How far are the students satisfied with MAI of EAP reading?", the responses to items 1,2,5,10,26, and 27 were analyzed. It is noteworthy that out of 117 students in the experimental group, only '73' participants responded. Therefore, 'data analysis adjustments' were made to the missing data to account for this non-response rate. This is one of the 'correct' ways to handle this shortage, according to Sharma et al. (2021). Therefore, the 'adjusted data' for all the missing participants' responses were taken into consideration after addressing the actual participants' response analyses for the descriptive study questions 4-6.

Back to the answer to the fourth study question, in their responses to the scaled items of 1,2,5,10,26, and 27, the majority of the actual respondents responded favorably. Regarding the first item, a majority 58 (79.5%) out of 73 respondents, chose both 'Often' (25/34.2%) and 'Always,' (33/45.2%). In response to item 2, a majority (58/79.5%) chose the highest two options. In response to items 5, 10,26, and 27, majorities chose the same options, they were 65, 64, 54, and 55, respectively. Besides, because the majority of the respondents' responses were all positive according to assessment criterion 1, it was presumed that the data for the missing respondents were relatively considered as forming positive 'majority' responses, accordingly. Therefore, it is concluded that the majority of students implied widespread satisfaction with

MAI, or they were ‘largely’ satisfied with this type of instruction. This answers the fourth study question.

To answer the fifth study question “5. What are the merits and demerits of MAI of EAP reading?” First, the actual respondents’ responses to items long-answer items 28, 30, and 31 were analyzed. Their responses to item 28 were the same as responses to items 30 and 31. In response to long answer item 30 asking for MAI merits, a minority 8(11%) did not give a suitable answer, and another 5(6.8%) were excluded because they gave highly academic answers that appeared not to be theirs. A vast majority of 60(82.2%) explained how MAI helped them. They mentioned that it was a good, time, cost, and effort-saving, easy, available, learning-accelerating, and quick way of instruction, its application was suitable, it gives extra information, it helped develop the skills [of reading], it helped with comprehension. They maintained that it enabled them to handle educational content easily, understand the structure of a text, know the meanings of words from the internet, search for more information from the internet, and provide opportunities for flexible learning.

When it came to mentioning the demerits in response to item 31, a slight majority of the actual respondents (40/ 54.8) said that sometimes, the mobile phone was not available, the internet connection was lost, “it hurt my eyes,” note-taking was not possible, there were distracting social website messages, “it has a small screen”, it needed money to be connected to the internet, it was sometimes used for non-educational purposes, it sometimes caused lack of focus, it reduced face-to-face interaction, and navigation was distracting. Then, bearing in mind the ‘adjusted data’ for the missing responses based on the actual respondents’ data, and since the majority of actual respondents gave positive answers according to assessment criterion 1, it was assumed, likewise, that the majority of the missing respondents gave positive answers according to the related assessment criterion 1. This two-step analysis of both the

merits and demerits of MAI of EAP activities provides an answer to the fifth study question "5. What are the merits and demerits of MAI of EAP reading?"

To answer the sixth study question "6. How far are the students satisfied with the 'other' instructional aspects of the EAP reading instruction?" first, the response statistical data analysis of the actual respondents for the remaining survey items (3-9,11-25, 29, and 32) are shown in Table (8) below.

Table 8

Actual participants' item-response statistical analysis

Item No.	Number & Percentage of Students selecting:				
	Never	Occasionally	Sometimes	Often	Always
3	1(1.4%)	5(6.8%)	12(16.4%)	18(24.7%)	37(50.7%)
4	3(4.1%)	3(4.1%)	13(7.8%)	18(24.7%)	36(49.3%)
6	1(1.4%)	4(5.5%)	8(11%)	16(21.9)	41(56%)
7	3(4.1%)	4(5.5%)	8(11%)	18(24.7%)	40(54.8)
8	4(5.5%)	7(9.6%)	9(12.3)	15(20.5%)	38(52.1%)
9	1(1.4%)	3(4.1%)	13(7.8%)	16(21.9)	40(54.8)
11	3(4.1%)	5(6.8%)	8(11%)	17(23.3%)	40(54.8)
12	2(2.7%)	5(6.8%)	12(16.4%)	15(20.5%)	39(53.4%)
13	4(5.5%)	5(6.8%)	10(13.7%)	23(31.5%)	31(42.5%)
14	4(5.5%)	6(8.2%)	8(11%)	19(26.1%)	36(49.3%)
15	2(2.7%)	2(2.7%)	14(19.2%)	13(17.8%)	42(57.5%)
16	4(5.5%)	6(8.2%)	9(12.3)	11(15.1%)	43(58.9%)
17	1(1.4%)	6(8.2%)	9(12.3)	11(15.1%)	43(58.9%)
18	2(2.7%)	7(9.6%)	10(13.7%)	16(21.9)	38(52.1%)
19	3(4.1%)	7(9.6%)	10(13.7%)	16(21.9)	37(50.7%)
20	1(1.4%)	5(6.8%)	9(12.3)	14(19.2%)	44(60.3)
21	2(2.7%)	2(2.7%)	13(17.8%)	14(19.2%)	42(57.5%)
22	1(1.4%)	3(4.1%)	11(15.1%)	13(17.8%)	45(61.6)
23	4(5.5%)	2(2.7%)	12(16.4%)	17(23.3%)	38(52.1%)
24	1(1.4%)	2(2.7%)	17(23.3%)	14(19.2%)	39(53.4%)
25	2(2.7%)	4(5.5%)	13(17.8%)	14(19.2%)	40(54.8)
29	2(2.7%)	7(9.6%)	14(19.2%)	11(15.1%)	39(53.4%)

Table (8) above displays the actual respondents' data analysis of items 3-9,11-25, 29, and 32. The highest student number and percentage choosing the 'Never' option to an item was 4(5.5%) reflecting an extreme minority selecting an option. The highest

student number and percentage choosing the 'Occasionally' option to an item was 7(9.6%) reflecting an extreme minority selecting an option, too. This meant that students did not favor these 'negative' options. This meant that students did not favor these 'negative' options. In turn, the highest student number and percentage choosing the 'Sometimes' option for an item was 14(19.2%) reflecting a minority selecting an option, too. By contrast, the least sum of students choosing both of the two options of 'Often' and "Always" to an item was 11 and 39, respectively reflecting the least majority selecting these two options. This means that bigger majorities chose the highest two options per the other items, conforming to assessment criterion 1. Therefore, the majority of students chose both the "Often" and "Always" options per all the survey items. Compensating for the missing respondents' data, assumptions of the same results were taken into consideration. Thus, the missing respondents' majority were assumed to respond positively on items 3-9,11-25, 29, and 32. This two-step analysis meant that the students were *largely* satisfied with the other aspects of EAP instruction than the mobile-assisted one. Therefore, the sixth study question "6. How far are the students satisfied with the 'other' instructional aspects of the EAP reading instruction?" was answered.

To summarize, the answer to the first study question reflecting the tabulated aspects of instruction in Table (2) was given within the procedures of the study. The answer to the second study question revealed that MAI was effective in enhancing the EAP reading performance (i.e. skills) of EoE EFL freshers. The answer to the third study question indicated that the intervention was even more effective than paper reading instruction in enhancing the EAP reading performance of FoE EFL freshers. Based on the two answers to study questions 4 and 6, it can be concluded that the FoE EFL freshers were satisfied with (and had positive views about) the MAI of EAP reading, and thus the participants were satisfied with **all** aspects of the instruction. Besides, the answer to the fifth question reflected students' mention of more merits of MAI than the demerits.

Collectively, these six answers above formed the present study findings.

Discussion

All the positive qualitative findings of the present study can be attributed to the use of MAI as the intervention. The quantitative findings of study questions 2 and 3 are supported by students' positive views reflecting satisfaction with MAI and mentioning more merits than demerits in response to the descriptive study questions 4-6. Even, when comparing the finding that the MAI experimental group performed higher than the paper reading control group, it is inescapable to mention that MAI has more features than paper reading. These features are represented in E-book Apps, Reading Mode, Text-To-Speech, PDF and Document Readers, Web Browsers, Note-Taking Apps, Offline Reading, and Accessibility Features. Most of these features do not exist in paper reading. Several restrictions to mobile instruction still exist, and these restrictions account for the reason why the comparison of both groups' effectiveness on the posttest showed that the level of effectiveness was ‘very weak’. Students mentioned such demits of MAI as "distraction", "bad vision", "small screen", and "loss of internet connection", to mention some.

The results of the study questions 1-6 have no exact match study results to compare results with. However, there are a number of studies demonstrating relative similarity in the results of one joint variable. The present study results are incomparable with Abd-Elmoety (2013), for the study did not use MAI. Another dissimilarity was that although the participants in both studies were Egyptian university freshers studying EFL, the present study participants studied EAP. Abd-Elmoety (2013), as mentioned earlier, focused on neither MAI nor EAP reading.

The present study findings are incomparable with those of Ali et al. (2023) showing positive effects of ‘technology integration’ on enhancing language skills including reading and speaking. Unlike the present study, the study handled 'general horizons' and was focused neither on MAI nor on EAP.

The present study findings are further inferred to be quite opposite to those of Yu et al. (2022) which showed that participants' reading strategies in mobile-assisted EFL reading were less effective than those during paper reading (Yu et al., 2022).

A little closer to the students’ positive satisfaction with MAI as a finding in the present study, Ozer and Kılıç (2018) showed slight similarity in the finding that a mobile-assisted learning environment had a significant effect on ‘academic achievement’ and ‘acceptance of mobile learning tools among EFL students.’ However, again, the study was not focused on EAP reading. Another study’s finding slightly similar to the present study findings is Okumuş Dağdeler (2023). The study found that a mobile-assisted vocabulary learning approach using a smartphone application enhanced EFL students' vocabulary retention and second language (L2) learning. Nonetheless, the present study findings were related to four reading skills (not only vocabulary), EAP, and utilization of more than one smartphone and tablet feature.

Conclusions

The present study findings indicate the effectiveness of MAI in enhancing the EAP reading performance of FoE EFL freshers. When compared with paper reading instruction, MAI outperformed it. The findings also revealed the students’ satisfaction with both MAI of EAP reading and all the other instruction aspects in general. The study findings included students' mention of more mobile-assisted merits than demerits as well. Therefore, the relationship between MAI in general and EFL reading in particular, let alone the EAP reading, can be seen as a promising area of research. Generally, academics, instructors, educators, and

practitioners should avail the features of MAI to enhance EAP reading and include them in their research or teaching practice. More confirmatory research findings are needed, however.

Directions for Further Research

The following suggestions can form academic advice based on the findings of the present study:

1. Necessity of MAI investigation in the Egyptian context, especially with EAP writing, speaking, and listening and also, with the same EGP (English for General Purposes) skills.

2. Further studies should handle the other educational stages than the university level

3. Specific mobile-assisted features should be focused on to develop the linguistic and literary areas of the language. One separate feature is worth researching, together with a language skill or component. This is still an untrodden area of research.

4. A combination of MAI with other interventions should be investigated on the language components in the Egyptian context.

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Appendix A

The EAP Reading Pre-Post-test

Skills assessed: reading for gist, reading specific information, reading for detailed understanding, and extracting the meaning of keywords from context

Time: 2.5 hours Total test mark 79 Venue: Lecture theatre 1

Question 1 Read the following passage and answer the questions below: (20 marks).

Teaching is rather considered an art. It not only incorporates setting **objectives** for planning but also ensures that all procedures are followed to attain the objectives. Lesson presentation must **enhance** students' **involvement** in the lesson to enable them to remember the points learned and to develop their knowledge, skills, and attitudes. The lesson steps are to be student-centered, for they need to be engaged in learning to remember what they have done easily. The teacher must pose questions for different purposes. This happens for examining students' understanding, moving from one point to another, maintaining the students' engagement and interest, checking the points taught, and **evaluating** students' work. During the lesson **delivery**, the teacher must establish eye contact with students and use teaching aids. The teaching steps must be followed in a logical order. The teachers must vary their **stimuli**, strategies, and teaching methods to make the students' learning effective. An important point to consider is **maintaining** students' interest and enthusiasm during the lesson. In conclusion, various mechanisms must be considered in a lesson plan. (adapted from Abu-Rahmah & Humaidi, 2004).)

1. This lesson is about…….. (4 marks)

2. Why should students take part in the lesson? (2 marks).

3. Why should a teacher ask questions? (2 marks)

4. Mention the meaning of the words in **bold**. (7 marks)

5. The singular form of stimuli is…… (1 mark).

6. According to the reading passage, mention whether the following sentences are **True** or **False**: (4 marks)

    a. Questions are considered a necessary part of a lesson. ( )

    b. A small number of considerations must be thought of before a lesson. ( )

    c. Students need to be interested in their own learning. ( )

    d. The teacher has to convey all knowledge by keeping talking all the time. ( )

Question 2: Read the following passage and answer the questions below: (19 marks)

On coming to the classroom, the learners deal with different curricula. A **curriculum** includes teaching ideologies, contents, tasks, teaching aids and techniques, besides different **assessment** types, including **formative** and **summative** assessments; process and product assessments; and divergent and convergent assessments. The curriculum is formed up in a systematic way, mainly inspired by the societal aspirations and experts' sequential arrangements of content display. Classes, seminars, projects, and **demonstrations** are to be considered as activities boosting learning. Adapted from O'Neil (2015) & El-Ghamri (2015)

1. This text handles……. (Complete) (4 marks)
2. Why should demonstrations be thought of in designing a curriculum? (2)
3. What elements does a curriculum include? (2 marks)
4. How is a curriculum formed? (2 marks)

5. ‘Divergent assessment’ means……while ‘convergent assessment’ means…… (2 marks)
6. ‘Societal aspiration’ means……..……..(1 mark)
7. Another word which is equivalent in meaning to 'sequential' is…….(1 mark)
8. Seminar means……. (1 mark)
9. Inspire means……(1 mark)
10. Mention the meaning of the words in bold. (1 mark)
11. Translate the last two sentences into Arabic. (3 marks).

Question 3: Read the Following text and do the tasks below: (20 marks)

In a **varying** classroom setting, the interactive whiteboard (IWB) technology has appeared as a technological creation. It is also recognized as a SMART board, an electronic, or digital whiteboard. The technology is a big touch-sensitive surface connected to a computer and one digital projector transferring the screen content and making visible the image which can be controlled. Examples of digital functions include ‘showing, moving, hiding, highlighting, **animating**, and retrieving objects (Glover et al., 2005). The non-digital **functions** include writing, copying, pasting, and erasing like the normal board. A special pen or your finger or both can be used to write on the board. Cogill (2004) stated some features of the IWB, such as reducing the time of writing, exhibiting good display of information, and increasing student **engagement**. The technology is also interesting, suitable for whole-class engagement, and helpful for making revisions and doing **collaborative** tasks. It further includes other functions, such as speakers and voting systems (Becta, 2003, pp. 1-2). It is also used for **evaluation** purposes in humanities (McKenna, 2000, p. 7). Moreover, computers can also provide 'enjoyable **options**,' introducing novel content, giving an opportunity to practice, show, and revise mistakes (McKenna, 2000, p. 40). (Adapted from Albaaly, 2010)

a. On your answer booklet, according to the passage, complete the following sentences: (13 marks)

1.	The passage above is about ……. (5 marks)
2.	The IWB has appeared as a …….
3.	The IWB can be called a '……..’ board, an electronic or a digital whiteboard.
4.	The IWB is connected to a computer and an ……
5.	The IWB has many ……...
6.	The IWB is important as it …….. the time of writing.
7.	The IWB enables teachers to use speakers or ……..
8.	The IWB cannot be used for …….. in education.
9.	The IWB enables teachers to make the learning environment …… enjoyable.
10.	The IWB can provide '……' to do with introducing new content.

b. Mention the meaning of the words in bold (7 marks)

Question 4: Read the Following text and answer the questions below: (20 marks)

Lesson planning is the major organizing structure in the educational process. It "… is the art of mixing techniques, activities, and **materials** in such a way that an ideal balance is created for the class" (according to Harmer 1991, p. 259). While planning and presenting a lesson, our main concern is helping learners **acquire** knowledge, skills, and attitudes (i.e. the KAS model). Harmer (1991: 256) connects good planning with the best teachers. In addition, Harmer (1998:121) stated that planning a lesson is **significant** for both students and the teacher. Shaeir (1990: 83) also stressed the importance of lesson planning and argued that to be successful and able to aid the students to **comprehend** and master the materials under study, the teacher must 'thoroughly plan lessons on a daily basis'. Another list of lesson planning benefits was provided by Propst (1997: 47). The list includes the following:

1. It helps the teacher to focus on the teaching points in the lesson.
2. It provides the teacher with a plan and a backup plan.
3. It forces the teacher to consider the purpose of the lesson and the reason for each step.
4. It allows the teacher to predict potential problems.
5. It encourages the teacher to inspect the lessons critically and make improvements. (Adapted from Abu-Rahmah, 2002)

a. On your answer booklet, *blacken/fill in circle (a) if the item is true or circle (b) if it is false.* (9 marks)

	This passage is on lesson assessment. (4 marks)
	Lesson planning allows learners to predict potential issues.
	Lesson planning is the art of mingling techniques, activities, and materials in such a way that creates an ideal balance in the class.
	Lesson planning assists teachers in focusing on the teaching points in the lesson.
	Lesson planning provides parents with a plan and a backup plan.
	Lesson planning helps teachers to consider the purpose of the lesson.

b. mentions the meaning of words in bold. (4 marks)

c. What are all the benefits of lesson planning mentioned in the passage? (7 marks)