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Effectiveness of E-learning Mode for Developing Arabic Language Skills for Non-Arab Speakers in Nigeria: An Empirical Study on FCE Katsina Students

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ABSTRACT

In a fast-changing digital age, technologies are changing the way we teach and learn in many respects. This research focuses on investigating the effectiveness of using e-learning as a mode for developing Arabic language skills among non-Arab speakers in Nigeria, with a specific empirical study conducted at the Federal College of Education (FCE) Katsina. In a country known for its linguistic diversity, language education plays a crucial role in promoting cross-cultural communication and understanding. However, the traditional classroom approach may not always cater to the varied learning needs of students. This study aims to assess the viability of e-learning in developing Arabic language skills in comparison to traditional classroom instruction, while also identifying challenges and advantages linked to its implementation. The research methodology utilizes a quantitative method approach. Quantitative data will be gathered through pre-and post-assessments, measuring the development of Arabic language skills among non-Arab speaker students before and after the e-learning intervention. The anticipated outcomes of this study include insights into the effectiveness of e-learning in language skill development, the identification of challenges and benefits associated with its implementation, and recommendations for optimizing the integration of e-learning in Arabic language education for non-Arab speakers.

INTRODUCTION

Recently, the educational landscape has experienced a substantial shift towards electronic learning, driven by improvements in technology and the growing demand for flexible and accessible education. This is particularly relevant in Nigeria, a country with diverse linguistic and cultural backgrounds that poses unique challenges for teaching languages, including Arabic.

A Semitic language with rich historical and cultural significance, mastery of Arabic involves proficiency in reading, writing, speaking, and understanding both classical and modern Arabic dialects. According to Abuemira (2024), acquiring Arabic language skills not only facilitates communication but also provides deeper insights into the cultural, religious, and historical contexts of the Arab world. These skills are essential for fostering intercultural understanding, promoting global citizenship, and navigating socio-political landscapes in regions where Arabic is prevalent. Given Nigeria's multicultural society, the acquisition of Arabic language skills among non-Arab speakers is crucial for promoting intercultural understanding and communication. The advent of e-learning presents a promising avenue for enhancing language learning opportunities in such a context. In Nigeria, a country characterized by linguistic diversity and cultural richness, the importance of language education is paramount for effective communication and cross-cultural understanding. Among the languages taught, Arabic holds significant relevance due to its historical, religious, and socio-economic connections within the country (Sanni & Masud, 2023). The acquisition of Arabic

language skills by non-Arab speakers presents challenges, as traditional classroom models may not always cater to the diverse learning needs and schedules of students. Fortunately, advancements in technology and the proliferation of e-learning platforms have revolutionized education worldwide. Consequently, there has been increased interest in exploring the potential of e-learning as an alternative mode for language instruction. While e-learning offers flexibility, accessibility, and interactive tools that can enhance language learning experiences, its effectiveness in the context of Arabic language education for non-Arab speakers in Nigeria remains relatively unexplored.

The Federal College of Education (FCE) Katsina, as a prominent institution in Nigeria, offers Arabic language courses to non-Arab speakers. However, there is a lack of empirical research that investigates the efficacy of e-learning as a mode for developing Arabic language skills among non-Arab speakers at FCE Katsina. This study aims to address this gap by assessing the effectiveness of e-learning in comparison to traditional classroom instruction, while also identifying challenges and advantages associated with its implementation.

This research aims to investigate the effectiveness of e-learning in developing Arabic language skills for non-Arab speakers at the Federal College of Education (FCE) Katsina. It responds to the urgent need to enhance language education practices in a multicultural society like Nigeria, shedding light on the potential of e-learning to bridge gaps in language instruction and contribute to more effective language learning outcomes among

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non-Arab speakers. Specifically, this study will evaluate the efficacy of e-learning as a mode of instruction for enhancing Arabic language skills among non-Arab speakers at the Federal College of Education (FCE) Katsina in comparison to traditional classroom methods.

LITERATURE REVIEW

Conceptual Review

E-learning in Language Education

E-learning has emerged as a transformative force in education, leveraging electronic media and Information and Communication Technologies (ICT) to deliver flexible, accessible, and personalized learning experiences (Xiao, 2023). This innovative approach has demonstrated substantial potential in language education, particularly through the integration of online courses, virtual classrooms, language learning applications, and multimedia resources.

E-learning utilizes electronic media and ICT to provide flexible, accessible, and personalized education. This method has shown significant potential in language education by incorporating online courses, virtual classrooms, language learning applications, and multimedia resources (Suman, 2023).

E-learning's flexibility and accessibility are key advantages in language education. Online courses and virtual classrooms enable students to learn at their own pace, anytime, and from any location with an internet connection (Moosavi & DeWitt, 2023). This flexibility is particularly beneficial for busy adults, students in remote areas, or those with disabilities, who may face barriers to traditional classroom-based instruction (Windfont, C. M. 2024). Moreover, e-learning platforms can cater to diverse learning styles and needs, ensuring that students receive tailored support and guidance (Garrison & Kanuka, 2004).

Online courses and virtual classrooms are essential components of e-learning in language education. These platforms provide students with access to a wide range of language courses, from beginner to advanced levels, and offer flexible scheduling options to accommodate diverse student needs (Khan, 2012). Virtual classrooms enable students to interact with instructors and peers in real-time, fostering a sense of community and social learning that is often lacking in traditional online courses (Almekhlafi *et al.*, 2024).

By implication, we can say that e-learning has shown significant potential in language education by incorporating online courses, virtual classrooms, language learning applications, and multimedia resources. This innovative approach offers students flexibility, accessibility, and personalization, which are essential for effective language learning. As technology continues to evolve, it is likely that e-learning will play an increasingly important role in language education, providing students with the skills and knowledge they need to succeed in an increasingly globalized world.

Arabic Language Learning for Non-Native Speakers learning Arabic as a non-native speaker involves understanding linguistic, cultural, and educational challenges. Effective strategies for overcoming these challenges include a focus on phonetics, grammar, vocabulary, and cultural context, tailored to the learners' specific needs. By acknowledging and addressing these challenges, non-native speakers can improve their language skills and achieve greater cultural understanding. (Usman, 2024).

One of the primary linguistic challenges in learning Arabic is the unique script and writing system. The Arabic alphabet consists of 28 letters, with distinct forms for isolated, initial, medial, and final positions (Gharaibeh & Alhassan, 2023). Non-native speakers may struggle to master the correct pronunciation and writing of these letters, which can impact their overall proficiency in the language.

Cultural differences also play a significant role in the learning process. Arabic culture is rich in customs, traditions, and values that are often unfamiliar to non-native speakers. Understanding these cultural nuances is essential for effective communication and avoiding misunderstandings (Kaninya, 2020). For example, the concept of honor and shame is deeply ingrained in Arabic culture, and non-native speakers must be aware of these cultural norms to avoid unintentionally offending native speakers.

Educational challenges in learning Arabic as a non-native speaker include limited access to resources, inadequate instruction, and lack of feedback (Al-Mamun, 2018). Non-native speakers may face difficulties in finding qualified instructors, accessing relevant materials, and receiving constructive feedback on their language skills. To overcome these challenges, effective strategies must be employed. A focus on phonetics, grammar, vocabulary, and cultural context is essential for non-native speakers of Arabic. Phonetics is crucial for accurate pronunciation and understanding of the language (Priya & Kumar, 2020). Grammar and vocabulary instruction should be tailored to the learners' specific needs and learning styles (Graves, 2016).

Theoretical Review

Theoretical Frameworks in Language E-Learning

Theoretical frameworks play a crucial role in language e-learning by providing a structured approach to understanding the complex interactions between users, technology, and services. These frameworks help guide the design and implementation of e-learning systems, ensuring that they are effective in achieving their intended goals.

One prominent theoretical framework in language e-learning is the e-learning systems theoretical framework proposed by Aparicio *et al.* (Alomari *et al.*, 2020). This framework is based on three main dimensions: users, technology, and services. The users dimension includes stakeholders such as learners, instructors, and

administrators. The technology dimension encompasses various tools and platforms used in e-learning, such as learning management systems (LMS), multimedia, and communication technologies. The services dimension includes the various activities and processes that take place within e-learning systems, such as content delivery, assessment, and feedback.

Another important aspect of language e-learning is the integration of instructional strategies and learning technologies. Dabbagh (2005) identified several instructional strategies that facilitate learning, including authentic activities, problem-solving, role-playing, and articulation and reflection. These strategies can be supported by various learning technologies, such as digital audio and video components, animation, hypermedia, and authoring tools.

Blended learning is another theoretical framework that has gained popularity in language e-learning. This approach combines traditional face-to-face instruction with digital learning platforms and tools. Effective blended learning environments require careful design and implementation, considering factors such as learner attributes, design features, and learning outcomes (Mortera-Gutiérrez, F. 2006).

Second Language Acquisition (SLA) Theories

Theories of second-language acquisition (SLA) aim to shed light on how people who already know one language learn a second language. The field of second-language acquisition involves various contributions from linguistics, sociolinguistics, psychology, cognitive science, neuroscience, and education. (Segalowitz, 2010).

Theories of second-language acquisition provide a framework for understanding the complex processes involved in language acquisition. By recognizing these theories and their implications, language teachers can better support learners in their language acquisition journey. And the major theories are:

Krashen's Input Hypothesis

Krashen's theory emphasizes the importance of comprehensible input in language acquisition. He suggests that learners must be exposed to language input that they can understand to acquire the language. (Bahrani & Nekouezadeh, 2014)

Noticing Hypothesis

Schmidt's noticing hypothesis posits that learners must notice the differences between their interlanguage structures and target norms to restructure their internal language processing and improve their language production. (Geist, 2013).

Acculturation Model

The acculturation model views language acquisition as a social and psychological process, where learners adapt to a new culture and language through social interactions and psychological factors. (Barjesteh & Vaseghi, 2012)

Sociocultural Theory

Vygotsky's sociocultural theory emphasizes the role of social interactions and cultural context in language acquisition, suggesting that learners develop language through social and imitation experiences. (Rublik, 2017)

Universal Grammar Hypothesis

The universal grammar hypothesis proposes that humans have an innate capacity for language acquisition, which is governed by universal grammar principles. (XIE, 2024) Interlanguage theory views language acquisition as a process of developing an internal language system that bridges the differences between the learner's native language and the target language. (Amanda, 2020)

Complexity Theory

Complexity theory recognizes that language acquisition is a complex, dynamic, and adaptive process that involves multiple factors and interactions. (Larsen-Freeman, 2013)

Empirical Review

The effectiveness of e-learning mode for developing Arabic language skills for non-Arab speakers has been a topic of interest in recent years. Several studies have investigated the impact of e-learning on Arabic language acquisition, with varying results. Among these studies are:

Challenges of Distance Learning in Language Classes

This study by (Dalal, 2021) examined the challenges of distance learning in language classes, including the Arabic language. The results highlighted the need for suitable training for teachers to utilize distance learning techniques effectively and the importance of technical support in schools and universities.

Arabic Language Learning Based on Technology: Opportunities and Challenges in the Digital Era

This study investigated the effectiveness of blended learning in teaching Arabic as a second language. The results showed that blended learning was effective in improving students' Arabic language skills, particularly in reading and writing. (Samsuar *et al.*, 2023)

METHODOLOGY

Introduction

This practical component details the implementation and evaluation of an e-learning program aimed at enhancing Arabic language skills among non-Arab speakers using a pre-test and post-test method on a single group of students.

Pre-Assessment Phase

Recruitment

The study recruited 40 non-Arabic speaking students enrolled in Arabic language courses at the Federal College of Education (FCE) Katsina. All participants formed a single group to undergo the e-learning intervention.

Baseline Assessment

To establish a baseline, the group undertook the Arabic Language Proficiency Test (ALPT). This standardized test assessed four key language skills: reading, writing, listening, and speaking.

Test Administration

The ALPT was administered in a controlled environment to ensure uniform testing conditions.

Data Recording: Scores from the pre-assessment were recorded for subsequent comparative analysis.

Intervention Phase**E-learning Program**

The participants engaged in a structured e-learning program over a period of 3 months. The program included:

Interactive Modules

Lessons were designed to be engaging and interactive, utilizing multimedia resources such as videos, audio recordings, and interactive quizzes.

Language Laboratory Sessions

Practical language scenarios were simulated in the language laboratory, allowing students to practice speaking and listening in a controlled environment.

Self-paced Learning

Students were able to access e-learning materials at their convenience, fostering a self-directed learning approach.

Post-Assessment Phase**Post-Intervention Testing**

At the end of the 3 months intervention period, the group undertook the Arabic Language Proficiency Test again to measure any improvements in their language skills.

Test Administration

Conducted under the same conditions as the pre-assessment to ensure consistency.

Data Collection

Post-intervention scores were recorded.

Hypothesis for the Study**Null Hypothesis (H_0)**

There is no significant difference between the pre-assessment and post-assessment scores in the Arabic language skills (reading, writing, speaking, listening) and the total scores of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Alternative Hypothesis (H_1)

There is a significant difference between the pre-assessment and post-assessment scores in the Arabic language skills (reading, writing, speaking, listening) and the total scores of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Data Analysis Strategy**Quantitative Analysis**

The quantitative data from the pre- and post-assessment tests were analyzed using statistical methods to determine the effectiveness of the e-learning program.

Paired T-tests

Conducted to compare pre-intervention and post-intervention scores within the group.

RESULT AND DISCUSSION

Conducted to compare pre-intervention and post-intervention scores within the group

Pre-Assessment Phase**Participant Recruitment**

The study enlisted 40 non-Arabic speaking students enrolled in Arabic language courses at the Federal College of Education (FCE) Katsina. These participants formed a single group to receive the e-learning intervention.

Initial Assessment

To establish a baseline, the group underwent the Arabic Language Proficiency Test (ALPT). This standardized examination assessed four critical language skills: reading, writing, listening, and speaking.

Test Administration

The ALPT was administered in a controlled environment to guarantee uniform testing conditions.

Data Recording

Scores from the pre-assessment were documented for subsequent comparative analysis.

Intervention Phase**E-learning Program**

The participants engaged in a structured e-learning program spanning 8 weeks. This program encompassed:

Interactive Modules

Lessons were designed to be engaging and interactive, utilizing multimedia resources such as videos, audio recordings, and interactive quizzes.

Language Laboratory Sessions

Practical language scenarios were simulated in the language laboratory, allowing students to practice speaking and listening in a controlled environment.

Self-paced Learning

Students had the flexibility to access the e-learning materials at their convenience, promoting a self-directed learning approach.

Post-Assessment Phase**Post-Intervention Evaluation**

Upon completion of the 8-week intervention period, the

group underwent the Arabic Language Proficiency Test again to assess any improvements in their language skills.

Test Administration

Conducted under the same conditions as the pre-assessment to ensure consistency.

Data Collection

Post-intervention scores were recorded.

Data Analysis Strategy

Quantitative Analysis

The quantitative data obtained from the pre- and post-assessment tests were analyzed employing statistical methods to determine the effectiveness of the e-learning program.

Paired T-tests

Conducted to compare the pre-intervention and post-

Table 1: T-Test Result for Overall Arabic Language Proficiency

Test	Number	Mean	Standard Deviation	Degree of Freedom	Calculated t-value	Critical t-value
Pre-test	40	12.75	0.93	39	10.76	±1.99
Post-test	40	15.13	1.04	39	14.512	±1.99

intervention scores within the group.

Data Analysis

Explanation

Pre-Test

- * Number of Participants (N): 40
- * Mean Score: 12.75
- * Standard Deviation: 0.93
- * Degrees of Freedom: 39
- * Calculated t-value: 10.76
- * Critical t-value ($\alpha=0.05$, two-tailed): ±1.99

Post-Test

- * Number of Participants (N): 40
- * Mean Score: 15.13
- * Standard Deviation: 1.04
- * Degrees of Freedom: 39

Interpretation

Pre-Test

The pre-assessment mean score of 12.75 suggests that, on average, students had a baseline Arabic language proficiency level of 12.75 before the intervention.

The low standard deviation of 0.93 indicates that the scores were tightly clustered around the mean, suggesting consistency among the students' initial proficiency levels.

With a calculated t-value of 10.76 and 39 degrees of freedom, there is a statistically significant difference between pre-assessment and post-assessment scores.

The critical t-value for a significance level of 0.05 with 39 degrees of freedom is ±1.99. Since the calculated t-value (10.76) exceeds the critical t-value, the difference is statistically significant. This implies that the improvement in language proficiency from pre-test to post-test is not likely due to random chance but is instead a result of the intervention.

Post-Test

The post-assessment mean score of 15.13 indicates that, on average, students demonstrated an improvement in Arabic language proficiency after the intervention.

The standard deviation of 1.04 indicates that the scores were relatively spread out, suggesting a wider range of proficiency levels among the students after the intervention.

With a calculated t-value of 14.512 and 39 degrees of freedom, there is a statistically significant difference between pre-assessment and post-assessment scores.

The critical t-value for a significance level of 0.05 with 39 degrees of freedom is ±1.99. Since the calculated t-value (14.512) exceeds the critical t-value, the difference is statistically significant. This implies that the improvement

Table 2: Reading Skills Evaluation

Test	Number	Mean	Standard Deviation	Degree of Freedom	Calculated t-value	Critical t-value
Pre-test	40	3.25	0.45	39	5.10	2.022
Post-test	40	3.825	0.38			

in language proficiency from pre-test to post-test is not likely due to random chance but is instead a result of the intervention.

Discussion of the Findings

Null Hypothesis (H₀)

There is no significant difference between the pre-assessment and post-assessment scores in reading skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Alternative Hypothesis (H₁)

There is a significant difference between the pre-assessment and post-assessment scores in reading skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Interpretation of the T-Test Result

- * Calculated t-value: 5.10
- * Critical t-value: 2.022 (for a two-tailed test with 39

degrees of freedom at a 0.05 significance level)

* p-value: The exact p-value can be calculated using statistical software, but given that the calculated t-value (5.10) is significantly larger than the critical t-value (2.022), the p-value will be much less than 0.05.

As the calculated t-value (5.10) is greater than the critical

t-value (2.022), we reject the null hypothesis (H_0). This indicates that there is a statistically significant difference between the pre-assessment and post-assessment scores in reading skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Table 3: Writing Skill

Test	Number	Mean	Standard Deviation	Degree of Freedom	Calculated t-value	Critical t-value
Pre-test	40	3.225	0.42	39	4.19	2.022
Post-test	40	3.65	0.38			

Conclusion

The results of the paired t-test reveal that the e-learning program had a significant positive impact on the reading skills of non-Arabic speaking students at FCE Katsina. The improvement from a mean score of 3.25 in the pre-test to a mean score of 3.825 in the post-test suggests that the e-learning program effectively enhanced the students' reading skills.

Discussion of the Result

Hypotheses

Null Hypothesis (H_0)

There is no significant difference between the pre-assessment and post-assessment scores in writing skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Alternative Hypothesis (H_1)

There is a significant difference between the pre-assessment and post-assessment scores in writing skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Interpretation of the T-Test Result

- Calculated t-value: 4.19
- Critical t-value: 2.022 (for a two-tailed test with 39 degrees of freedom at a 0.05 significance level)
- p-value: The exact p-value can be calculated using statistical software, but given that the calculated t-value (4.19) is significantly larger than the critical t-value (2.022), the p-value will be much less than 0.05.

Since the calculated t-value (4.19) is greater than the critical t-value (2.022), we reject the null hypothesis (H_0). This means there is a statistically significant difference between the pre-assessment and post-assessment scores in writing skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Conclusion

The results of the paired t-test indicate that the e-learning program had a significant positive effect on the writing skills of non-Arabic speaking students at FCE Katsina. The improvement from a mean score of 3.225 in the pre-

Table 4: Speaking Skills

Table of Results						
Test	Number	Mean	Standard Deviation	Degree of Freedom	Calculated t-value	Critical t-value
Pre-test	40	3.175	0.35	39	6.42	2.022
Post-test	40	3.75	0.43			

test to a mean score of 3.65 in the post-test suggests that the e-learning program effectively enhanced the students' writing skills.

Discussion of the Findings

Hypotheses

Null Hypothesis (H_0)

There is no significant difference between the pre-assessment and post-assessment scores in speaking skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Alternative Hypothesis (H_1)

There is a significant difference between the pre-assessment and post-assessment scores in speaking skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Interpretation of the t-Test Results

- * Calculated t-value: 6.42
- * Critical t-value: 2.022 (for a two-tailed test with 39 degrees of freedom at a 0.05 significance level)
- * p-value: The exact p-value can be calculated using statistical software, but given that the calculated t-value (6.42) is significantly larger than the critical t-value (2.022), the p-value will be much less than 0.05.

As the calculated t-value (6.42) is greater than the critical t-value (2.022), the null hypothesis (H_0) is rejected. This indicates that there is a statistically significant difference between the pre-assessment and post-assessment scores in speaking skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Conclusion

The results of the paired t-test demonstrate that the

e-learning program had a significant and positive impact on the speaking skills of non-Arabic speaking students at FCE Katsina. The improvement from a mean score of 3.175 in the pre-test to a mean score of 3.75 in the post-test indicates that the e-learning program effectively

enhanced the students' speaking skills.

Discussion of the Result

Hypotheses

Null Hypothesis (H₀)

Table 5: Listening Skill

Test	Number	Mean	Standard Deviation	Degree of Freedom	Calculated t-value	Critical t-value
Pre-test	40	3.075	0.35	78	6.60	1.99
Post-test	40	3.90	0.59			

There is no significant difference between the pre-assessment and post-assessment scores in listening skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Alternative Hypothesis (H₁)

There is a significant difference between the pre-assessment and post-assessment scores in listening skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

Interpretation of the T-Test Result

* Calculated t-value: 6.60

* Critical t-value: 1.99 (for a two-tailed test with 78 degrees of freedom at a 0.05 significance level)

* p-value: The exact p-value can be calculated using statistical software, but given that the calculated t-value (6.60) is significantly larger than the critical t-value (1.99), the p-value will be much less than 0.05.

Since the calculated t-value (6.60) is greater than the critical t-value (1.99), we reject the null hypothesis (H₀). This means there is a statistically significant difference between the pre-assessment and post-assessment scores in listening skills of non-Arabic speaking students at FCE Katsina after using the e-learning program.

The results of the paired t-test indicate that the e-learning program had a significant positive effect on the listening skills of non-Arabic speaking students at FCE Katsina. The improvement from a mean score of 3.075 in the pre-test to a mean score of 3.90 in the post-test suggests that the e-learning program effectively enhanced the students' listening skills.

CONCLUSION

The primary objective of this study was to assess the effectiveness of e-learning as a mode of instruction for enhancing Arabic language skills among non-Arabic speakers at the Federal College of Education (FCE) Katsina, in contrast to traditional classroom methods. Based on the analysis and discussion, it can be concluded that the e-learning program that was implemented at the FCE Katsina had a substantial and positive impact on the Arabic language proficiency of non-Arabic speaking students. The paired t-test analysis revealed statistically significant improvements in all four language skills—reading, writing, speaking, and listening—following the

intervention. This finding suggests that the structured and interactive e-learning approach was effective in enhancing the students' overall language abilities. The success of the program underscores the potential of e-learning tools in language education, particularly for non-native speakers. The results unequivocally demonstrate that the e-learning program significantly improved the Arabic language skills of non-Arabic speaking students at FCE Katsina. The program's interactive and flexible approach contributed to these positive outcomes, highlighting its potential as a valuable tool in language education.

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