

THE EFFECT OF DUAL LANGUAGE SELF-DIRECTED LEARNING APPLICATION ON THE ACADEMIC ACHIEVEMENT OF NON-YORUBA SPEAKERS IN YORUBA LANGUAGE PEDAGOGY

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ARTICLE INFORMATION

Article history

Received: 01 July 2024
Revised: 22 August 2024
Accepted: 26 September 2024

Keywords:

Dual language Application, Self-directed pedagogy, Academic achievement, non-Yoruba learners, Sustainable Education

ABSTRACT

The study investigates differences in the performance of male and female, different categories of non-Yoruba language learners after being exposed to the Dual language (Yoruba and English) self-directed learning application on the academic achievement of non-Yoruba learners in Yoruba language. The subjects used were sixty non-Yoruba speakers. Pretest- posttest quasi experimental design was adopted. Dual language self-directed learning application achievement test was the instrument used. Two research hypotheses and two research questions were used. The results revealed that the post-test mean score of male learners was 18.082 with SD of 2.306 while female learners was 18.068, SD was 2.280. The mean difference between the male and female was 0.026. This means that there is no significant difference exists in the post-test scores of male and female non-Yoruba language learners. RQ2 revealed no difference in the post-test mean scores of performances of different categories of non-Yoruba language learners (students, teachers, working class) in Yoruba language due to utilization of dual language self-directed learning application. H1 revealed that the calculated value of "t" is 0.035, p-value of 0.178. H2 revealed no significant difference in the performance of male and female non-Yoruba language learners in Yoruba language. H2 revealed calculated values of 22.748, 24.966 and 23.046 respectively. p-value < 0.05 for each of the different categories of non-Yoruba language learners. Hence, there is no difference in the performances of the different categories of Yoruba L2 learners. The study concluded that dual language self-directed application is a viable pedagogy.

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1. Introduction

ICT tools for teaching and learning languages are becoming popular in contemporary language education. This is because children are now increasingly exposed to technological gadgets more than ever before. Integrating these technological gadgets into the teaching and learning of basic school subjects like language is believed to help improve students' learning and understanding of the subject. The question now is how to effectively utilise the potential that ICT, as well as other audio-visual aids, could offer such subjects to be taught and learned more effectively, especially for non-natives of the language.

Dual language self-directed learning applications have emerged in the contemporary educational landscape as pivotal tools for enhancing language acquisition. This article explores the impact of these applications on the academic achievement of non-Yoruba speakers in Yoruba language pedagogy, emphasising sustainable education. Given the increasing necessity for multilingual competencies in our globalised world, leveraging technology to foster effective language learning has never been more pertinent.

Learning a second or foreign language, although perceived to be difficult, especially when the language structure is different and has numerous morphological processes, becomes less difficult if students have a positive attitude, show enthusiasm towards these languages, spend more time reading and using the

language in carrying out activities, and do better at them. Students are frequently affected by the concepts they form about their abilities, which in turn inspires the level of their learning and their performance (Olawoyin, 2023). When these students lack interest and enthusiasm and perceive the Yoruba language as difficult, they may not excel in the language unless they start developing a good enthusiasm, are allowed to maintain their permanent learning process, and are given the opportunities to decide what they learn and when they learn the language concerning meaningful learning. In this way, negative attitudes towards the Yoruba language that have been developed previously will start to change, and this, in turn, will motivate the students to show a more positive attitude towards the language, which has been observed to increase the students' academic performance in Yoruba language (Adegbija, 2004).

Dual language learning involves the concurrent learning of two languages, which can significantly enhance cognitive flexibility and cultural competence (Bialystok, 2011). Self-directed learning, defined as a process in which individuals take the initiative in diagnosing their learning needs, formulating goals, identifying resources, and evaluating outcomes, is crucial in fostering lifelong learning skills (Knowles, 1975). It was also observed that the conventional method of teaching, which is teacher-centred, the environment which is always uncondusive for learning and the unavailability of teaching materials that are interactive for students' experiential learning is not helping the situation. There is, therefore, the need to come up with alternative methods of teaching and learning the subject.

The recent phenomenon revealed that every activity is placed online, announcing that the world is globalised and that the world is in a digital era, such as online transactions, online business, online lectures, virtual meetings, zoom meetings, and virtual training. This has made it easy for global communication and interaction. Also, the government of Nigeria, realising the importance of producing a multilingual child, stated in the national language policy that a Nigerian child acquires at least four languages: Mother tongue, English, one other Nigerian language and French, which will eventually move forward in business, education, politics, economy and in social transactions and to foster peace and unity.

The global world embraced online or virtual activities to its fullest during the COVID-19 pandemic when the movement of people was restricted for months, and activities in schools, churches, and online marketing became virtual or online. Waters (2020) explained that virtual activities can be used for specific wellbeing lessons or can be woven into other curricular teaching subjects such as English, arts and humanities, etc. Waters also highlighted some strengths of online activities in education: to get

students socially connected online and get them focused on learning and to reward students and finish off the class in a positive way before they log off.

With the contemporary trend of some developed countries becoming interested in learning the Yoruba language and awakening the owner of the language, there is a need for designing an app that will be self-directed for effective teaching and learning of Yoruba/ English and in the form of fun (Ojo, 2006). To further move Yoruba language teaching and learning beyond the classroom and learner-teacher relationship to online learning (Mishra, Gupta & Shree, 2020).

Dual language is a form of education in which students are taught literacy and content in two languages. Most dual language programs in the United States teach in English and Spanish, but programs increasingly use a partner language other than Spanish, such as Arabic, Chinese, French, Hawaiian, Japanese, or Korean.

2. Objectives of the Study

The general objective of this study was to investigate the effect of dual language self-directed learning applications on the academic achievement of non-Yoruba language learners in the Yoruba language. The specific objectives are to:

1. examine if differences exist in the performance of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications and
2. ascertain the extent to which difference exists in the performance of different categories of non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning application.

3. Research Questions

The following research questions were raised to guide the study:

1. To what extent does a difference exist in the performance of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications?
2. To what extent does difference exist in the performance of different categories of non-Yoruba language learners in Yoruba language due to the utilisation of dual language self-directed learning applications?

4 Research Hypotheses

The following null hypotheses were tested in the study:

H₀₁: There is no significant difference in the performance of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

H₀₂: There is no significant difference in the performance of different categories of non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

5. Literature Review:

Self-Directed Learning (SDL)

SDL is an educational process in which learners take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying resources, and evaluating learning outcomes (Knowles, 1975). Studies have shown that SDL fosters autonomy and motivation among learners (Garrison, 1997). Also, Olusola and Ajayi (2023) explained that this study examines the influence of digital learning tools, including dual language applications, on the acquisition of Yoruba among non-native speakers. The findings indicate a marked improvement in language skills and cultural understanding among learners using these tools compared to traditional methods. Balogun and Adebayo (2022) opined that this research explores the effectiveness of self-directed learning applications in Yoruba language pedagogy. It highlights how these applications support sustainable education by promoting autonomy and sustained engagement in language learning.

Dual Language Learning Applications

Dual language applications provide instruction in two languages, promoting bilingualism and cross-cultural communication. Research indicates that these applications enhance cognitive flexibility and academic performance (Cummins, 2000). Adetunji and Fakoya (2021) emphasised that focusing on bilingual education, this paper investigates the academic outcomes of non-Yoruba speakers learning Yoruba through bilingual self-directed applications. The study shows significant academic gains and enhanced language retention among students using these applications, especially non-Yoruba speaking learners. Also, Odeyemi and Abiodun (2022) mentioned that the study emphasises the importance of digital learning tools in preserving cultural heritage. It demonstrates how dual language applications can enhance the academic achievement of non-Yoruba speakers while promoting cultural awareness and sustainability.

Yoruba Language Pedagogy and Sustainable Education

The teaching of Yoruba, a major language in Nigeria, involves not only linguistic skills but also an understanding of cultural contexts (Adegbija, 2004). Effective pedagogy incorporates multimedia resources and interactive methods to engage learners in the learning of the Yoruba language.

Sustainable education focuses on equipping learners with skills and knowledge that promote long-term personal and societal benefits (Sterling, 2001). Language learning is a critical component in fostering cultural diversity and global citizenship. Ogunleye and Fashola (2021) confirmed that this article reviews the role of technology, particularly self-directed learning applications, in Yoruba language education. The authors argued that such applications not only improve language proficiency but also align with sustainable education principles by fostering lifelong learning skills. This paper highlights the significance of integrating modern technology with traditional language teaching methods to foster sustainable educational practices and improve language acquisition among non-native speakers.

6. Methodology

A pretest-posttest quasi-experimental design was adopted. The study's participants were sixty non-Yoruba speakers. The participants were randomly selected from three categories of people: 15 teachers, 21 students and 24 workers. Dual language self-directed learning application achievement test was the instrument used, while Dual language self-directed learning application served as the treatment.

Procedure

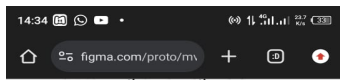
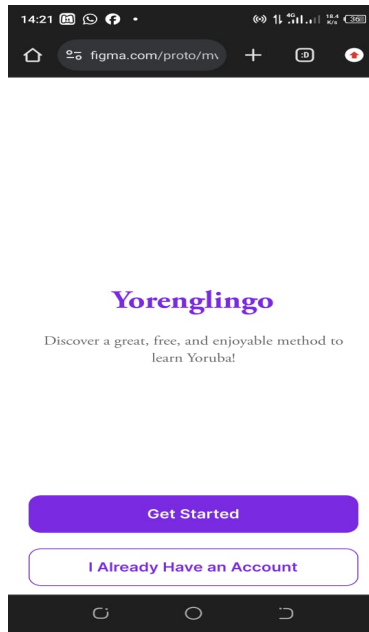
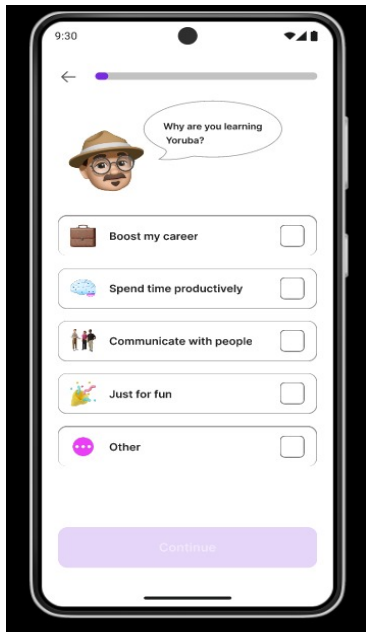
Day 1- administration of Dual language self-directed learning Achievement test (pretest)

Day 2- intervention of Dual language self-directed learning application

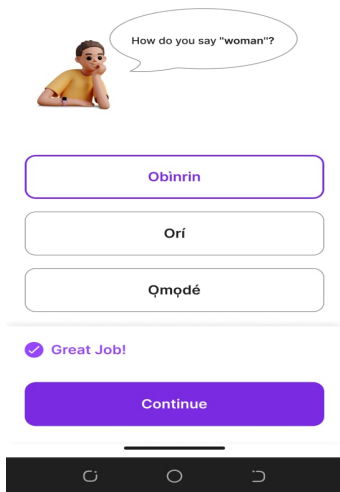
Day 3- administration of Dual language self-directed learning application with Achievement test (Post-test)

Treatment

Here is the prototype of the dual language self-directed learning application (YORENGLINGO)



Select the correct translation



Screenshot of *Yorenglingo* Prototype

7. Data Analysis

Means and standard deviation were used to test the pretest – post-test scores.

Research Question One

To what extent does a difference exist in the performance of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications?

Table 1: Difference in the performance of male and female non-Yoruba language learners in

Yoruba language due to utilisation of dual language self-directed learning application

Gender	Frequency (N)	Mean	Post test Standard Deviation	Mean Difference
Male	28	18.082	2.306	0.026
Female	32	18.068	2.280	
Total/Average	60	18.075	2.293	

Table 1 shows the mean difference in the post-test mean scores of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning application. Table 1 shows that the post-test mean scores of male non-Yoruba language learners in the Yoruba language after utilisation of dual language self-directed learning application were 18.082 with a standard deviation of 2.306, while the post-test mean scores of female non-Yoruba language learners in the Yoruba language after utilisation of dual language self-directed learning application was 18.068 with a standard deviation of 2.280. The mean difference between the male and female non-Yoruba language learners' scores was 0.026. This is an indication that no significant difference exists in the post-test scores of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

Research Question Two

To what extent does difference exist in the performance of different categories of non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications?

Table 2: Difference in the performance of different categories of non-Yoruba language learners in Yoruba language due to utilisation of dual language self-directed learning application

Categories	Frequency (N)	Mean	Post test Standard Deviation	Mean Difference
Students	26	18.115	3.468	Not Differ
Teachers	16	18.000	1.414	
Working class	18	18.111	1.997	
Total/Average	60	18.075	2.293	

Table 2 shows the difference in the post-test mean scores of performances of different categories of non-Yoruba language learners (students, teachers and working class) in the Yoruba language due to the utilisation of dual language self-directed learning application. Table 2 also reveals that the post-test means scores of the performance of each of the different categories of non-Yoruba language learners (students, teachers and working class) in the Yoruba language due to the utilisation of dual language self-directed learning application is approximately 18. Since the difference among the post-test means

scores is less than 0.5, it is an indication that no significant difference exists in the post-test scores of performances of different categories of non-Yoruba language learners (students, teachers and working class) in Yoruba language due to utilisation of dual language self-directed learning application.

Testing of Hypotheses

Hypothesis One

There is no significant difference in the performance of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

Table 3: Difference in the performance of male and female non-Yoruba language learners in Yoruba language due to utilisation of dual language self-directed learning application

Variables	Mean	SD	N	t	p-value
Performance of male non-Yoruba language learners in Yoruba language	18.082	2.306	28		
				.035*	.178
Performance of female non-Yoruba language learners in Yoruba language	18.068	2.280	32		

* Not Significant, P > 0.05, df = 58

Table 3 shows that the calculated value of “t” is 0.035 with a returned p-value of 0.178. Since the p-value of 0.178 is greater than 0.05, the null hypothesis, which stated that “There is no significant difference in the performance of male and female non-Yoruba language learners in the Yoruba language due to utilisation of dual language self-directed learning application”, is hereby accepted. Thus, no significant difference existed in the performance of male and female non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

Hypothesis Two

There is no significant difference in the performance of different categories of non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

Table 4: Difference in the performance of different categories of non-Yoruba language learners in Yoruba language due to utilisation of dual language self-directed learning application

Categories	Frequency (N)	Pre test		Post test		t	Sig.
		Mean	Standard Deviation	Mean	Standard Deviation		
Students	26	8.538	1.140	18.115	3.468	22.748	.001
Teachers	16	8.563	0.873	18.000	1.414	24.966	.000
Working class	18	8.556	1.097	18.111	1.997	23.046	.000
Total/Average	60	8.552	1.037	18.075	2.293	-	-

Table 4 shows that the calculated value of “t” for the performance of different categories of non-Yoruba language learners (students, teachers and working class) in the Yoruba language due to utilisation of dual language self-directed learning application are 22.748, 24.966 and 23.046 respectively. The returned p-value for each of the different categories of non-Yoruba language learners (students, teachers and working class) is less than 0.05. Thus, the null hypothesis, which stated that “There is no significant difference in the performance of different categories of non-Yoruba language learners in the Yoruba language due to utilisation of dual language self-directed learning application”, is hereby accepted. Hence, no difference existed in the performance of different categories of non-Yoruba language learners in the Yoruba language due to the utilisation of dual language self-directed learning applications.

8. Discussion of Results

The results revealed no significant difference in the mean scores and the standard deviation. These can be attributed to the fact that the subjects are in the environment of the speakers of the target language. This is also in consonance with Mayra (2023), who declared that dual language instruction serves as a powerful tool for fostering socio-cultural competence, which will help learners develop cross-cultural competence and thrive in multicultural settings. This is also in support of Akinbode and Olamide (2023) that dual language learning applications in the context of Yoruba language pedagogy. The research findings suggest that these applications significantly improve learners' academic performance and engagement, contributing to more effective and sustainable education outcomes.

This study agrees with Ezenwa and Okeke (2023) and also supports their findings on self-directed learning applications which explore innovative approaches to language learning, with a focus on self-directed applications in African languages, including Yoruba. The authors highlight the positive impact on academic achievement and the potential for these tools to support sustainable education initiatives.

The findings underscore the potential of dual language self-directed learning applications in enhancing the academic achievement of non-Yoruba speakers in Yoruba language pedagogy. These applications not only improve language proficiency but also foster a more engaging and self-motivated learning environment. This aligns with the principles of sustainable education, which emphasise the development of skills and competencies that support lifelong learning and adaptability in a rapidly changing world (Sterling, 2010).

9. Conclusion

The study demonstrates the potential of dual language self-directed learning applications in promoting

language proficiency and cultural understanding. This approach aligns with sustainable education principles, offering a valuable tool for educators and policymakers. It suggested that dual language self-directed learning is a viable innovation that can enhance academic achievement in the Yoruba language for non-Yoruba learners and support sustainable education goals. The integration of technology in language teaching provides a flexible and effective approach to learning, particularly for non-native speakers. It aims to contribute to the field of language learning by designing Yorenglingo and Duolingo applications specifically tailored for the Yoruba language. The findings are expected to shed more light on the effectiveness of self-directed learning through digital platforms and its impact on language proficiency and cultural understanding.

10. Recommendations

Based on the findings, the study recommends that:

1. **Integration into Curriculum:** Educational institutions should consider integrating dual language self-directed learning applications into the Yoruba language curriculum to enhance language acquisition and learner engagement.
2. **Teacher Training:** Teachers should be trained on how to effectively incorporate these applications into their teaching practices, ensuring that they can guide and support students in their self-directed learning journey.
3. **Continuous Improvement:** Developers of language learning applications should continuously seek feedback from users to improve the functionality and effectiveness of their products, ensuring they meet the diverse needs of learners.
4. **Accessibility:** Efforts should be made to ensure that these applications are accessible to all students, including those from disadvantaged backgrounds, to promote equitable learning opportunities.
5. **Yorenglingo:** The dual language self-directed app should be developed by the researcher for the effective learning of the Yoruba language, literature and culture of both native and non-Yoruba learners at home and in the diaspora.
6. **Duolingo:** Developers of Duolingo should include Yoruba in the Duolingo

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