Education App for West African Students as User of English as a Second Language

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# Introduction

South Africa has 11 official languages, and its Language in Education policy (van Staden, 2021) requires that pupil’s study in their native language . In most schools (with predominantly African instructors and pupils), all courses are taught in English in educational institutes (McAllister & Irvine, 2002) . More than 80% of students in South Africa take some kind of language course at this level. The first three years of language instruction are reviewed with students in grades four and above. For these institutions, English should be the language of instruction beginning in the higher grades of elementary school (specified by the language policy) (Hult, 2017), However, most schools stick with teaching in either their first language of instruction (a separate vernacular) or a combination of both languages (code-switching) beyond the first three years. In South Africa, both English and Afrikaans are used in the classroom, and pupils of all races and backgrounds (white, Indian, and black) are represented. The purpose of this article is to analyze how non-native English speakers in South Africa perform in English compared to their performance in their original language (as assessed by PIRLS 2006) (Sibanda, 2017), given that this is the grow. This study uses the Programmed for International Student Assessment (PIRSA) 2006 to compare the English language skills of non-native South Africans with their native language skills (Sibanda, 2017). Although it is expected that native English speakers would have far better results than individuals learning English as a second languages, their scores are included for comparison purposes. The study presents the PIRLS 2006 general performance, then discusses data sources and analysis methodologies. The study results and conclusions are discussed.

Over 60% of English-writing youngsters did not speak English at home; majority spoke an African language (Gast et al., 2017). Non-native English speakers writing in English were expected to do better on the international test than their classmates in African-language-taught institutions. It was crucial to examine the children's English competence and observe how it influenced their PIRLS 2006 performance (Mavroveli & Sánchez‐Ruiz, 2011). PIRLS 2006 database and the English national assessment (ENA) were English second language tests. Locally created ENA was given to all PIRLS 2006 test-takers. The exam was prepared according to the Revised National Curriculum Statement (RNCS) used in South Africa's school system. Each form has three texts and related questions. For leaning we proposed the model of APP development.

# Research /literature review

## App-Based Language Learning Research

Language learning applications for smartphones have recently come into the spotlight because to improvements in wireless network infrastructure and the prevalence of smartphones in people's daily lives (Nami, 2020a). The term "mobile app" is used to describe "a software program designed for use on tiny, wireless computing devices, such as smartphones and tablets, rather than desktop or laptop computers" (Godwin-Jones, 2011). For the sake of this investigation, the word "app" refers to all smartphone programs created with language training in mind.

Due to the early stage of this field of study, there are not many published studies on the usage of specific smartphone apps created for language acquisition. (Nami, 2020a), For example, Hadada, a language learning app for smartphones, was shown to improve young students' vocabulary and spelling because it gave them the tools to make vocabulary lists in many languages and generate audio word problems using the app's text-to-speech function. Moreover, another study looked at how mobile learning affected the English proficiency of elementary school students (Elaish et al., 2019). Researchers examined the English vocabulary recall of three groups of participants: those who had access to Early, a mobile application that gives reading and writing lessons on animals; those who did not have access to Early; and a control group. A portable electronic gadget was also provided to certain people in the treatment sessions. Results showed that pupils in the group who brought the gadget home did better than those in the other two. Furthermore, 71.43% of their participants considered mobile learning as successful as learning with an instructor, and the majority of participants enjoyed the experience (Nami, 2020a).

(Steel, 2012) examined how students of French, Japanese, and Spanish at a school in Africa make use of mobile apps. Mobile apps were well-liked by his participants because of their convenience, portability, and the ability to study while on the go; nonetheless, just 23% ranked them as one of their top three most-used technologies (Moroz, 2013) Using two Kanji apps (a flashcard-based app and a dictionary-based app) to educate 139 Japanese students on Chinese characters, we were able to learn what features students valued most and gauge the level of familiarity both students and teachers had with these tools. She found that students who were more proficient in the target language were more invested in their studies, and therefore more aware of the applicability. The application was more challenging for novice users than for intermediate users. Nami (2020b) found that high school students preferred the dictionary app over the flash card app. Research on the efficacy of using mobile apps for language learning has often zeroed in on specific apps that have been hand-picked by researchers and/or educators. When given the freedom to choose their own language-learning apps, students do not present a unified picture of the apps they use, their opinions about the efficacy of these apps for learning different language skills, or the impact of external variables like gender, app type, and cost on their perspective.

## Selecting databases and search terms

ResearchGate, Online sources, and Google searches were used to collect data for the research. To broaden the scope of the search to include research from Africa that may not be accessible in international journal databases, the African Journals Online (AJOL) database was queried. AJOL now has 526 journals from 32 African countries. The search was conducted using Boolean operators like "and" and "or" and keywords like "English," "language," "higher education," "tertiary education," "universities," "education," and "research," all of which are derived from the goals of this article (Asim et al., 2021).

## Applying screening criteria for the preparation of app

According to the following criteria, the publications included in this research met the review's goals, questions, and scope for the comprehensive analysis:

* These were carried out in African contexts.
* It emphasized parts of the English language.
* appeared in publications between 2008 and 2017.
* were printed in journals with peer review.
* were written in English, had a higher education theme, and covered those topics.

After entering the keywords into the databases, we used the analytics offered by the databases or read the titles and abstracts to narrow our focus to publications about African nations and universities. Since the use of English at African universities has been more widespread over the past decade and since this study focuses on current publications, a period of ten years was chosen to examine the relevant literature. Last but not least, the review only includes publications from reputable, peer-reviewed journals. Only 36 papers met the inclusion criteria and were selected for this analysis. Six of the original 36 articles were disqualified from further review in the second stage of screening because they did not address English language challenges from a higher education viewpoint or were discovered to be duplicates in other databases. In order to complete the analysis, the 30 papers were read in their entirety and compared to the research questions.

## ****How companies in Africa are investing in Digital Education****

There is a skills gap in western Africa, and organizations are stepping up to the challenge by investing in digital education projects. The Ateliers des Genies is a good example of such a company. Ateliers Des Genies runs a number of educational programs for young people, most of them are focused on the technical and scientific fields. In addition, they collaborate with educational institutions to better equip young people in sub-Saharan Africa for the occupations of the future and for the daily use of digital media. Many educational institutions in that region of Africa are teaming up with non-profits like these to help close the knowledge gap that is making their students less employable on the global stage (Kazis et al., 2007).

Parents in Senegal who I've spoken with about their children's education acknowledge the significance of these skill sets but lack a firm grasp on where to lead their children to acquire them outside of the classroom. The government of west African recognizes the importance of meeting this need, and over the next three to five years, it plans to invest in expanding access to digital education programs in both public and private institutions (Bloom et al., 2014).

## ****Support from the Developed World****

We found out that the most pressing demand is not monetary after speaking with many western African companies and social organizations that are committed to digital education (Fuchs & Horak, 2008). Those who are really invested in expanding digital education in Africa either already have the resources to do so or know how to effectively collect money to do so. There is a lack of business savvy, which prevents them from following through. More businesses in emerging countries need assistance from established businesses in order to see their projects through to fruition. Youth from all over the globe may have an equal shot at the future job market that will rely on digital education if organizations and communities that understand digital education in developed nations spend their time and resources into them.

# Evaluation

As a result of the proliferation of mobile apps, Africa is seeing a multifaceted transformation on many fronts of society. African software engineers are developing and using mobile technologies, cloud computing, and social media to meet a wide range of demands in sectors such as banking, information collecting, farming, healthcare, education, and training. However, in order to create these applications, they've had to solve a wide range of issues with Africa's information technology infrastructure.

## Technologies Are Required For Learning App Development

Choosing the right technology and tools is crucial for the development of a successful educational app. The development time and cost, as well as the scalability and maintainability of an app, are all impacted by the technology stack used to create the mobile app (Baldini et al., 2017). In order to design an instructional mobile app, we will be discussing the following popular mobile app development strategies and relevant technologies:

**Native app development** is well suited to creating an instructional software for a certain operating system (iOS or Android). Taking this route necessitates developing using platform-specific technology.

**Hybrid app development** permits the development of hybrid (web and native) applications. To put it simply, the heart of the program is a web-based component embedded in a native shell. Hybrid applications combine web-app and native-app characteristics to provide a seamless mobile experience.

**Web app development** implies creating applications that run on a mobile device and connect to distant servers.

**Backend development** is needed if you plan on keeping user statistics, processing payments, providing users with access to their data, and syncing data across several devices.

## Features Of Education App Development

### 1. Live Tutorials

You should include live lessons and practice sessions into your education app. A student's questions about any topic may be answered swiftly and effectively via the use of live sessions. Simply including a "chat now" function, which makes it possible to recruit other instructors, is enough to establish the virtual classroom.

### 2. Interactive Content

Students may find hundreds of helpful educational apps on the App Store and Google Play. If you want your app to be downloaded often, you need to make sure that the information is interesting, visually appealing, and simple to grasp. Let's talk about several content-based essentials for attracting many consumers at once:

* Students who aren't very bright should be able to comprehend and enjoy the material.
* Optimize for mobile devices.
* Include some interesting data and fun anecdotes in your material to keep readers interested.
* You need to have a certain audience in mind while creating content.

### 3. Video-Based Content

Prerecorded lectures given by instructors are a great resource that may be accessed by students using this tool. The classroom is available to the learner around the clock. What, however, are the benefits of video lectures? In order to quickly review previously covered material, you may pause a movie, zoom in on an image, and even go back in time. Actually, there's much too much interest. It's helpful for educators as well as their pupils.

## Benefits Of Education App Development

* In comparison to using an app, students may save a lot of time by not having to devote so much time to traveling to and from a classroom.
* Students and their families get an immediate alert with timely announcements about upcoming tests, application deadlines, and other events.
* Online learning gives students with immediate access to answers to their questions and, as a result, a higher level of engagement.
* You have access to educational tools around the clock.
* The ability to monitor your development over time is a major plus. It is simple to monitor development over time and adjust instruction appropriately.
* There is no longer any need to go great distances in search of various books, guides, and reading materials. You can get everything you want with only a few clicks.

# Critical analysis

There are exciting initiatives to assure a position in the digital era, but there are also genuine worries. (Bennett et al., 2008) proposes that educational institutions examine technology claims before implementing them. This proposal is crucial for South Africa, since resources are limited. Much study is needed in Africa, especially South Africa, to understand the influence of education technology. (Adam & Alhassan, 2021) ask for more data to substantiate the advantages of ICT in education. The survey also calls for the collected data to be accessible and consolidated, rather than spread across multiple publications and databases. Higher education institutions are crucial to the national development agenda and must remain vigilant to avoid retreating into the enclaves of the global knowledge elite. South Africa must employ educational technology to educate and run the school system. Through educational technology, we must make knowledge a human right. Our pupils' lives are digital. Affordable, omnipresent, post-scarcity permanently networked digital technologies are coming. With price reductions and capabilities increases in the digital world, South Africa's national technology concerns may be history (McChesney, 2013).

Given the history of resource scarcity in African education, the absence of learning resources was problematic. Teachers' instructional activities were curtailed. Even if the school governing body is responsible for materials provisioning, the government and parents should provide access to the finest education methods to remedy a history of under-provision (Clark & Linder, 2006). The courses lacked the form-focused teaching that separates a language lesson from others because the contents of the texts became goals in themselves, rather as the carrier material through which the true content of language might be engaged with in the classroom. When employing texts as linguistic input, instructors used the story-telling approach because they understood the meaning as the characters' activities.

## Implications

Few studies have studied the educational potential of mobile devices for language acquisition. Few research examines students' usage and attitude toward smartphone applications for language learning. This study adds to the research on educational apps by addressing the sorts of applications utilized by university students. The results imply that students require good impressions of the applications they are using and feel comfortable with them to assess their pedagogical worth and contribution to learning (Kalantzis & Cope, 2012). If smartphone applications are to be utilized for educational purposes, including language learning, app material should mirror course content and pedagogical objectives. Educators, app designers, and curriculum creators in any subject, including language learning, should collaborate to produce app content matched with course material and pedagogical goals (Sharples et al., 2016). Various technologies demand different sorts of literacy, thus it's important to teach children how to utilize smartphone applications effectively. Instructors and teachers are needed to reach this goal. Future study should investigate teachers' opinions of and competency with smartphone applications and their instructional relevance, given the importance of instructors' know-how and resistance (Bloom, 2014). Professional development programs and seminars should improve instructors' skill and comprehension of mobile technology, particularly smartphone apps. In environments like Iranian higher education, lecturers discourage students from using cellphones as a major or secondary source of study. (Tang et al., 2021) suggested comparing instructors' and students' mobile learning and teaching intentions. According to (Moya & Camacho, 2021), research on mobile learning sustainability is limited. Future research should examine how smartphone applications meant to teach language skills affect students' mastery of such abilities, using numerous data sources. Future research on the same issue should involve focus group talks to further understand learners' perspectives. Prior successful or failed experiences with language learning applications should also be reviewed. Further experimental investigations are required to determine how cultural and societal aspects affect students' adoption of mobile technology (Chung et al., 2015). Personal learning styles and methods might impact student learning through smartphone applications.

## Recommendations for future

A small majority of people advocated for completely eliminating the target language from the school curriculum, while the majority supported using English as the medium of instruction alongside indigenous languages out of concern for their extinction. Even if English is foreign to us since it was imposed on us by colonialists, the necessity to preserve our local languages should not override the role that English plays in facilitating our quest for better communication and academic prowess. On the other hand, students of all racial, ethnic, religious, and socioeconomic backgrounds should make concerted efforts to improve their oral and written communication skills and academic standing. Here are the suggestions made by the researchers:

* The best way to prepare these children for the demanding academic work they will be doing is to ensure that all schools provide a learning environment that stimulates and motivates them.
* Using top-frequency counts produced from a corpus of the language under investigation (thus a "corpus-based phonetics from below") has shown to be an effective method for pursuing cutting-edge phonetics in the realm of basic linguistics research. This method permits the most distributional statements to be made, using the fewest feasible words, concerning the most frequently used portion of a language's vocabulary. When comparing a corpus-based method with the so-called 'traditional ways' of introspection and informant elicitation, the discussion of question particles revealed that corpora disclose both right and wrong conventional conclusions.
* We have emphasized the significance of pronunciation guides based on corpora as well as textbooks, syllabi, workbooks, manuals, etc. based on corpora in the field of language education. Additionally, we demonstrated how the teacher may mine the corpus for contrasting morpho-syntactic and syntactic patterns to employ in the classroom.
* Finally, we've indicated that there is now at least one language toolkit available on the market that makes use of a corpus. Given our success with the first-generation software for spellcheckers in four African languages, we feel confident in our ability to develop spellcheckers for all of the African languages spoken in South Africa.

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