African Journal of
Education and Practice
(AJEP)

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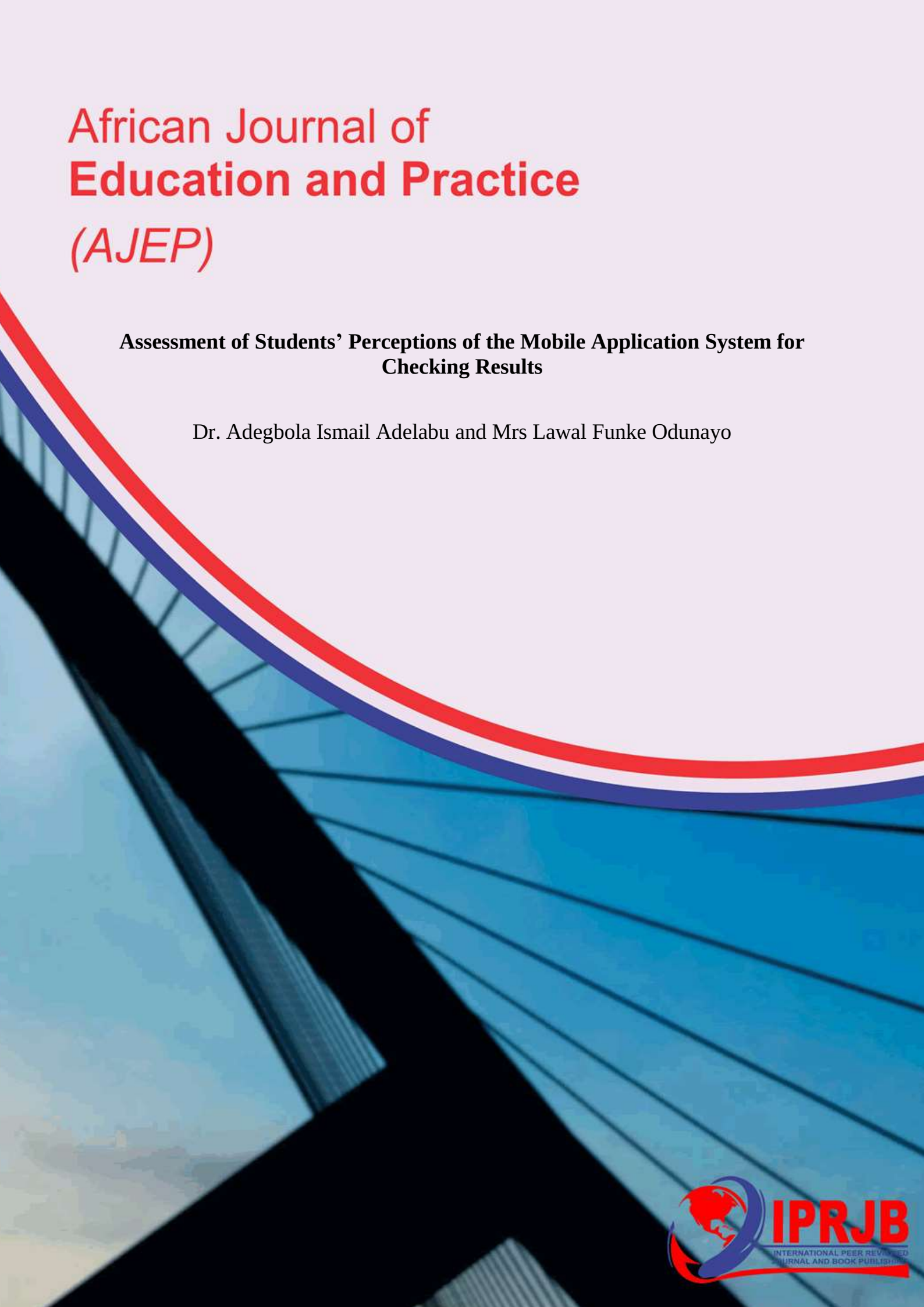

IPRJB
INTERNATIONAL PEER REVIEWED JOURNAL AND BOOK PUBLISHING

African Journal of Education and Practice
ISSN 2519-0296 (Online)
Vol.9, Issue 4, No.3, pp 26 - 38, 2023

www.iprjb.org

Assessment of Students' Perceptions of the Mobile Application System for Checking Results

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Article History

Received 4th November 2023

Received in Revised Form 16th November 2023

Accepted 30th November 2023

How to cite in APA format:

Adegbola, I., & Lawal, O. (2023). Assessment of Students' Perceptions of the Mobile Application System for Checking Results . *African Journal of Education and Practice*, *9*(4), 26–38. https://doi.org/10.47604/ajep.2217

Abstract

Purpose: Students have had major difficulties in locating their results at the appropriate time due to the method of pasting results on the walls across the departments or checking through a website which required login through a web browser. These methods are not always quick, smart, and fun to access thus, creating delays and making students not be aware when the results are out. This delay serves as a hindrance to students' educational advancement and career growth. The purpose of this research is to develop a mobile result-checking Application that give students a simple way to check results with their mobile phone. Also, the research evaluates the perception and efficiency of the mobile result-checking application developed in Oyo State College of Education.

Methodology: A well structure questionnaire measuring the efficiency and perception of the use of mobile result-checking application was administered to the students. The analyses were performed using SPSS. The relationship between categorical variables was summarized using frequency distribution and the Fisher exact test.

Findings: The implemented mobile result-checking application works effectively on all platforms and phone brands. The perceptions and experiences of the students with the Application were positive. The features of the application were highly rated by students. A favourable user experience, positive reviews, and a user-friendly interface all contributed to the students' adoption of the application for checking their results.

Unique Contribution to Theory, Practice and Policy: This research has made a meaningful contribution to the Federal Government of Nigeria Tertiary Education Trust Fund digital literacy policy of transacting educational business via digital devices.

Keywords: *Education, Mobile Application, Oyo, Result, Students*

INTRODUCTION

There has been a surge in interest in recent years regarding the best ways to use computers and mobile phones to increase the efficacy and efficiency of education at all levels in Nigeria. In developed nations, mobile application technology dominates all methods of producing, storing, distributing, and managing information (dela Pena-Bandalaria, 2020). If mobile applications are used at all in developing nations, it is not for educational purposes and are still in its infancy (Jinot, 2019). In the past, a lack of infrastructure and the ensuing high costs of devices and access has been widely blamed for the poor utilization of mobile applications. Today, however, in developing nations such as Nigeria things are different because more than 75% of tertiary students have access to a smartphone (Apuke & Iyendo, 2018). A smartphone is a device that runs an operating system such as Android, Windows, iOS, and Blackberry OS similar to the one run by a personal computer (Adekotujo et al., 2020). Smartphones support different functions supported by personal computer.

Onyema (2019) reported that the growing interest in the development of Mobile application in Nigeria is due to the increased use of smartphones among students. Smartphones make it easier to access the services of various organizations anytime, anywhere and on the go. Time and space are not constraints for mobile applications. It can be accessible from anywhere in the world, around-the-clock, seven days a week. In the educational sector, smartphone devices with mobile application like Moodle app can be used to access course content even when offline, submit assignments, access internet resources, and connect with participants in a virtual classroom lecture (Ulanday et al., 2021). Mobile methods of communication are the most practical means of interacting with students in Nigeria due to the country's more affordable internet connection (Egielewa et al., 2022).

Vattøy (2020) studied the effect of the feedback process on student overall learning outcomes. The researcher revealed that access to feedback as soon as they are due is a key factor in motivating student academic performance. The morale of students tends to be low when the result is badly processed, delayed, or announced with a missing grade. In Nigeria's higher education institutions, students' academic achievement has been gauged by the grades obtained from each course offered.

In their 2020 study, "Information and communication technology utilizations in tertiary institutions in Nigeria," Ibrahim et al. found that many schools still use antiquated techniques for data processing, analysis, and sharing, such as typing and using desktop programs like Word and Excel, for examination administration and result processing. Few institutions used their websites to announce the results. Even with this method, students must use a web browser to log into the institution’s site; they may not be aware of this until the results are announced. The delay created by manual result processing creates delays and it is frequently concentrated in a few students and is indicated by a missing grade (Udeze et al., 2017). One way to solve the issue of smoothly informing the learner of the outcome is through the use of ICT a mobile app. Processing results from any location is convenient for instructors because it cuts down on the time it takes for desktop processing. Furthermore, students can easily receive it through a push notification if the results are made public.

The Mobile USSD-SMS Interactive Result Checking System (MIRCS), created by Kawu et al. (2020), is a low-end USSD-SMS based system for checking student results in tertiary institutions. Any phone without internet access is used by MIRCS to verify results. It is usually

utilized, nonetheless, in situations when internet connectivity is extremely difficult. Students are not allowed to file complaints if there are missing results.

A multifactor authentication result checker system based on an SMS-based multifactor authentication result checking system was developed by Famutimi et al. (2015) using GSM. The goal of this work was to enhance the existing authentication techniques and implement them on a mobile phone-based examination result checking system. It is not designed to handle several results that can be added together to give students a semester statement of results, nor is it a graphical user interface.

The Android-based Result Checker App for Guru Govind Singh IndraPrastha University (GGSIPU), located in New Delhi, was presented by Choudhary and Batra (2018). It gives students access to their results in a mobile-friendly format and offers helpful information such as percentiles, rankings, and top performers. This is a good approach, but it is only compatible with Android-powered smartphones.

Majority of prior studies in solving the problem of processing and timely released of the result are web-based processing, requires web browser to accessed them and virtually unpredictable. The students need to continue check the institution portal for result. Only very few uses mobile application for accessing the result and have not have not adequately addressed the research questions that bothers on user experience and factors that determine the adoption of mobile result checking system.

In this research, a Mobile Result Checking Application that is independent of the operating system platform has been developed and evaluated for efficiency. MRCA Admin menu consists of a menu to Register Students, Upload Grade, Admin Menu to manage students and create an announcement to the students. The student results can be uploaded for each student upon registration and can be uploaded after registration. The MRCA Students menu consists of the Grade menu, CGPA menu, Notification View menu and My Profile menu.

Figures 1 (a) and (b) show the screenshots of the Administrative and student dashboard of the Mobile Result Checking Application respectively.

African Journal of Education and Practice
ISSN 2519-0296 (Online)
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Figure 1(a): Admin Dashboard of Mobile Result Checking Application

Students have the opportunity to view their results as they are released semester by semester through the student dashboard. Notifications of public announcements issued by the college can also be sent to them.

African Journal of Education and Practice
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Figure 1(b): Student Dashboard of Mobile Result Checking Application

This research is guided by Technology Acceptance Model theory (TAM). It was developed by Fred Davis in the late 1980s. TAM is based on a principle that users are more likely to accept and use a technology if they perceive it as useful and easy to use. It suggests that users are more likely to adopt and use a technology if they find it easy to use and believe it will enhance their performance or make tasks more efficient. In the context of assessing students' perceptions of a mobile application system for checking results, TAM application helps the researchers in designing mobile apps that are perceived as useful, easy to learn, and compatible with users' existing habits. It also helps researchers understand whether students find the mobile app easy to use and whether they perceive it as a useful tool for accessing their academic performance data. This theory also guides the investigation into factors that influence students' acceptance and adoption of the app.

Objectives of the Study

i. To assess the functionality of the mobile result-checking application features developed at Oyo State College of Education Lanlate across various platforms and phone brands.

ii. To assess the student user experience of the mobile result checking application developed at Oyo State College of Education, Lanlate

iii. To assess the perception of students on the adoption mobile result-checking app developed in Oyo State College of Education Lanlate

iv. To evaluate the factors that determine students' adoption of the mobile result-checking application at Oyo State College of Education Lanlate

METHODOLOGY

Study Design

The study was a cross-sectional study aimed at evaluating the performance, user interface and experience, and adoption of the mobile result-checking application created at Oyo State College of Education, Lanlate. To collect the necessary quantitative data, a well-designed Google form questionnaire was made available to the students through students' WhatsApp groups.

Study Population

The students of Oyo State College of Education serve as the population for the study.

Inclusion Criteria

Student at Oyo State College of Education who owns a smartphone with application download and installation capabilities.

Exclusion Criteria

Students who don't have phones that can download and install applications, as well as those who decline to participate in the study, were excluded from the study.

Sample Size and Sampling Technique

The required sample size was calculated using the Gpower software to be 100 with 80% power and a 95% level of significance. Using a simple random technique, students from all academic levels were recruited for the study.

Study Instrument and Data Collection

The instrument used for data collection is a students' perception of the mobile result-checking questionnaire (SPMRCQ) using four modified Likert rating scales. The questionnaire is made of 5 sections including the demographic characteristics of the students, user interface features of the application, user experience, determinant factor for adoption of the application and overall rating of the mobile result checking application.

Data Management and Analysis

SPSS (IBM, SPSS Inc.) was used for the data analysis. The categorical variables were summarized using cross-tabulation and frequency distribution. The Fisher Exact test was used to examine the relationship between various variables. All analysis was performed at a 0.05 level of significance.

RESULTS

A total of 100 students were recruited for the study, 67% of whom were male and 33% of whom were female. The students were chosen at random from all levels of the college to eliminate bias and guarantee equal representation. 39% of the students were from the 100-level, 31% from the 200-level, and the remaining students were from the 300-level.

Table 1: Demographic Characteristics of the Participants

Variable	Percentage
Gender	
Male	67
Female	33
Academic Level	
100	39
200	31
300	30

By asking the students to identify the different features of the mobile result-checking application installed on their phones, the application's features on the students' mobile phones were explored. The presence of the result view, notification view, and CGPA calculation feature on the application was confirmed by every student. Additionally, it was disclosed that the program displays the grade in a readable format and sends push notifications whenever a new result becomes available.

Table 2: User Interface Features of Mobile Result Checking App

Features	Response	
	Yes	No
Result view feature	100	0
Notification view feature	100	0
Grade in readable format	100	0
CGPA calculation feature	100	0
Notification push for new result	100	0

Based on their assessments of the mobile result-checking application's user experience, the students were divided into two groups (Good experience and poor experience). The Fisher exact test was used to evaluate the relationship between the user experience group and the application user debut (first-time user or returned user). Figure 1 illustrates that 90% of the students are first-time users of the mobile result-checking app, with only 10% being repeat users. Results showed that every student had a good experience in navigating the app and checking the result. The application helps the student in achieving the goal of checking results. All of the students concurred that the mobile application helped address issues of missing grades, and they preferred it to the traditional methods of putting results on walls or checking results on a browser. The Fisher exact test found no association between the user's experience using the mobile result-checking application and whether they were first-time or returning users.

Table 3: Association between User Experience and User's Debut

Experience	Use app for the first time		p-value
	Yes	No	
The app help achieve goal of checking result			-
Good	90	10	
Poor	0	0	
The navigation of the mobile result checking application is good			-
Good	90	10	
Poor	0	0	
The app made it easy for me to resolve missing grade			-
Good	90	10	
Poor	0	0	
I prefer mobile result checking app to wall pasting and checking through a browser			-
Good	90	10	
Poor	0	0	
The app offers a complete result of a student in one place semester by semester			.809
Good	88	10	
Poor	2	0	
The app offers a shorter time in checking the result			.900
Good	89	10	
Poor	1	0	
Over all user experience			.727
Good	87	10	
Poor	3	0	

Furthermore, depending on how the students responded to the factors that influence students' adoption of mobile result-checking application, the students were divided into two groups (students with good and poor perception). In general, the majority of students (64%) had a good perception of using applications to check results, whereas 36% had a poor perception of using mobile applications to check results. The educational level of the students and their general perceptions of using the mobile application to check results were not significantly associated.

The figure below shows the users' debut of the Mobile Result Checking Application

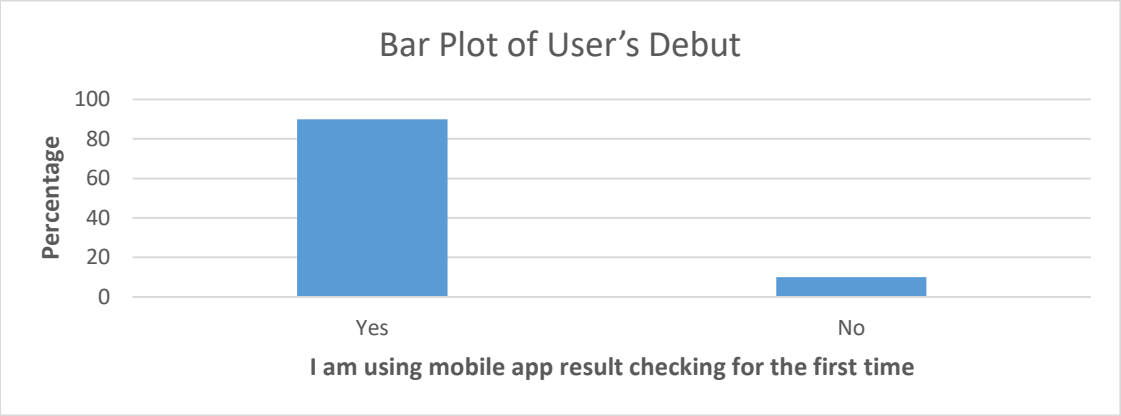

Figure 2: Graphical Representation of Users' Debut

Table 4: Association between the Students' Perception of the Mobile Result Checking App and Their Academic Level

Student Perception	Academic Level			p-value
	100	200	300	
Skill level of students in computer application determine the adoption of mobile app grade checking				.092
Good	39	31	28	
Poor	0	0	2	
Gender of the students is a determinant of mobile app adoption in result checking				.768
Good	26	19	21	
Poor	13	12	9	
Frequent use of mobile app determines the adoption of grade checking app				-
Good	39	31	30	
Poor	0	0	0	
Attitude of students towards learning determine the adoption of mobile app grade checking system				-
Good	39	31	30	
Poor	0	0	0	
Access to smartphone and internet determine the adoption of mobile app grade checking				-
Good	39	31	30	
Poor	0	0	0	
Overall perception of the mobile result checking app				.894
Good	26	19	19	
Poor	13	12	11	

The students were asked to score their experience with using and navigating the application, the load speed, and the application's intuitiveness on a scale of 1–5, with 1 denoting the lowest

rating and 5 denoting the highest rating. For all of the application's features, a higher percentage of the students rank it between 4-5.

Table 5: Overall Rating of the Mobile Result Checking App

	Ratings in percentage				
	1	**2**	**3**	**4**	**5**
Experience using the app	15	4	3	34	44
Interface of the app	9	8	5	35	43
Look and feel of the app	13	4	8	30	45
Loading speed of the app	11	8	3	31	47
Navigation of the app	11	8	3	25	53
Intuitiveness of the app	13	6	3	23	55

CONCLUSION

The mobile result-checking application was implemented and functions effectively across all platforms and phone brands because all the recruited students reported having the same application's functionality on their phones. The research finds that students' perceptions and experiences with the mobile result-checking application were positive. The features of the application were highly rated by students. The student's adoption of the mobile application for checking their results was aided by a good user experience, positive reviews, and a user-friendly interface. Finally, the study indicates that a mobile application result-checking system is suitable for communicating students' results as opposed to wall pasting and checking through a web browser. This also has the potential to improve student's digital literacy skills and encourage students to use mobile applications for learning purposes.

Unique Contribution to Theory and Policy

This research is being conducted at a time when the National Digital Literacy Policy is being promoted by the Federal Government of Nigeria through the Tertiary Education Trust Fund (TETFund). Digital literacy promotes the fundamental skills required to create and share digital material using intelligent technology, such as mobile technology (Kateryna et al., 2020). Digital literacy is the focal point of the world and should be the focal point of Nigeria, when fully integrated will result in a digital revolution, particularly in the ways that everybody in higher institution relate to one another, learn, teach, give feedback online and in real time (Tertiary Education Trust Fund, 2022).

Tertiary Education Trust Fund (2023) implement the National Digital Literacy Framework in tertiary institutions, by establishing the Advisory Committee on Digital Literacy, Productivity, and Emerging Skills. The committee is charged with performing a baseline evaluation of tertiary staff and student digital literacy skills. After completing a prescribed test, they will be required to complete a digital literacy skill training and receive a certificate. Every month, the TETFund hosts a Global Conversation on Digital Literacy in Africa to raise awareness. The most recent occurred on October 4, 2023, and it was led by Emeritus Professor Olugbemiro Jegede, the committee chairman, under the topic "What is Digital Literacy." The use of mobile applications to inform students of their results supports the digital literacy policy, which encourages the creation and seamless sharing of digital content among staff and students.

Acknowledgement

This research was funded by Tertiary Education Trust Fund (TETFund) Institution Based Research Grant. The research was made possible via the hard work of the Oyo State College

of Education, Lanlate staff, students, and management, whom the authors sincerely thank for their contributions.

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