

# Awareness and Use of Innovative Educational Mobile Applications among Students of Rivers State University

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## Abstract

Engaging students online has proven to yield positive outcomes in their performance mainly because learners do not have to worry about getting to a physical classroom to participate in the class activity. This study seeks to find out students' awareness and use of innovative educational mobile applications that can help improve their productivity academically in Rivers State University. The study adopted a descriptive survey and interview methods. Three research questions guided the study. 260 students represented the sample of this study. The instrument that was used for data collection was a questionnaire with 41 items titled "Students' Awareness and Use of Innovative Educational Mobile Applications". The instrument comprises a 4-point Likert type rating scale which ranged from one (lowest response) to four (highest response). Data gathered was analyzed using mean and thematic interpretation. The results showed that students in Rivers State University have a low awareness and usage level when it comes to mobile applications that can improve academic performance and students use social /entertainment mobile applications than they use academic oriented mobile applications. Based on the findings it is therefore recommended that workshops should be organized to demonstrate how several mobile applications can be used to enhance academic productivity and lecturers should introduce the use of academic oriented mobile applications when delivering instruction to foster meaningful usage by students.

**Keywords:** Academic performance, collaboration, digital literacy, innovative learning, mobile applications, students' engagement.

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## INTRODUCTION

Mobile applications and its use in instruction delivery and assimilation has no doubt come to change the narrative in the teaching and learning process. Today there are innovative apps that are suitable for educational purposes and they are taking over old ways of both teaching and learning because they help yield best results for the learner and the teacher. When it comes to students' engagement, performance and access the use of mobile application has also proven to be of great benefit to the entire teaching and learning process. A mobile application is a type of application software developed to work on a mobile device (Rouse, 2020). Among the most popular of mobile applications are games, social networking, maps, news, business, weather and travel information. According to Shailesh, Kumar and Shiva 2021 mobile application development involves the process of developing the applications for mobile devices such as Personal Digital Assistants (PDA),

tablets and smart phones and other mobile devices. Native mobile apps are designed to run on a specific mobile platform, sometimes specific mobile operating system and supported hardware. According to Oliveira, D.; Pedro, L.; and Santos, C., 2021, the market for mobile communications and applications is one of the fastest growing and most dynamic areas in digital technologies, with new formulas to be tested, namely operating systems, types of devices to be used, navigation systems and business models. As seen in Hilliard 2014 not only have the sales of smartphone and tablets increased, but the number of mobile apps installed has also grown exponentially. The Pew Research Internet Project indicates that approximately 50 percent of all smartphone users have mobile apps installed; of this percentage, two-thirds of the individuals are regular mobile app users (Hilliard, A 2014).

A report on student mobile device usage in 2020 reviews that ownership of smartphones and tablets

among college students in America increased meaningfully compared to a decline in ownership of laptop computers, which again testifies the rising need of mobile app in the higher education sector. (engage2serve, 2020). Since mobile devices are always close at hand, a school's mobile communications strategy provides an opportunity to effectively generate meaningful engagement with students throughout the lifecycle of prospects, enrolled students, and alumni. According to Laura, T. 2021, years ago students attending lectures usually spend a lot of time jotting eagerly on notepads in order not to miss any vital bit of information. Then along came technology, and mobile apps like lecture capture apps. Lecture capture apps allows learners to record and listen back to classes without having to spend extra money on expensive recording equipment.

Adeola, T. 2022, is of the view that mobile applications can help enhance the academic pursuit of Nigerian higher education students if used to access information, save reminders or updates about their courses, take notes and attend virtual classes. Some of the most important mobile applications that can be useful to Nigerian university students according to Adeola, T. 2022 include; The Dictionary app, Office Suite (WPS and Microsoft Office), Video search engines (YouTube) Online education providers (Coursera, Khan Academy, and Udemy), Classroom app (Google Classroom and Edmodo E-book app), Question and answer app (The Quora app) Professional networking app (LinkedIn lets you create a professional online presence and access internships, volunteering, and job opportunities). Truly as observed by Yu-Lin Jeng *et al.*, (2010), mobile technology does not aim to complicate learning process but facilitate mobile learners' learning process.

Empirical studies on the use and effects of mobile applications by students in higher education indicate different results. Key findings from Gaffar and Kumar 2019, who in their study sort to find out the awareness, access, and usage of mobile applications among the users of a technical institute library in Rourkela include 35% of the respondents are aware of mobile application available in the library, 11% of the respondents are using mobile application of the library, 31% of the respondents are using smartphones for educational and library, social media, E-mails and Gaming purpose, 13% of the respondents are accessing available library resources/e-journals on their Smartphone, 31% of the respondents have downloaded 6-10 applications on their mobile device. Preliminary findings from Oliveira *et al.*, (2021) who examined the practices of the use of mobile applications by students in a higher education institution during classes suggest that the use of apps during the theoretical classes of the Department of Communication and Art is quite high and that the most used apps are social networks like Facebook and Instagram. During this pilot the accesses during theoretical classes corresponded to approximately

11,177 accesses per student. The researchers concluded that the students agree that accessing applications can distract them during these classes and that they have a misperception about their use of online applications during classes, as the usage time is, in fact, more intensive than what participants reported. Results from Hinze *et al.*, 2022 whose study surveyed staff and higher degree research students at a New Zealand university using an online questionnaire to gain insight into the use of mobile apps for tertiary teaching and research. Findings indicate that mobile apps were used by academics and students for both teaching and research, primarily in the form of document and data storage and exchange, and communication. Very little app use was recorded for in-class activities (teaching) or in- field activities (research). Apps use resulted from personal motivation rather than institutional planning. Both students and academics reported that institutional support and flexibility would likely provide motivation and lead to increased app use for both research and teaching.

### Statement of the Problem

Every aspect of living and functioning in today's world is gradually depending on the use of mobile and handheld devices. A very significant percentage of the world's population access and use the internet via their personal mobile devices every day and this includes learners and their teachers. The major 21<sup>st</sup> century skills of creativity, critical thinking, communication and collaboration needed to function in the 21<sup>st</sup> world are skills expected from graduates of higher institutions globally. These skills which are centered around digital technologies are mostly accessed, acquired and developed using several educational related mobile applications which in turn means that students are expected to be conversant and up-to-date when it comes to using such mobile applications. However, the need and urgency to obtain these 21<sup>st</sup> century skills that have been deemed to be critical to students' success in the new economy has not been translated to changes in classroom practice. This study therefore seeks to find out students' awareness and use of innovative educational mobile applications that can help improve their productivity academically and to find out if students use such mobile applications for academic enhancement.

### AIM AND OBJECTIVES OF THE STUDY

The aim of this study is to find out the awareness level of learners in higher institutions in Rivers State about mobile applications that can help improve academic productivity. Specifically, the objectives of this study are to;

1. Find out if students are aware of mobile applications that can improve their academic productivity.
2. Find out if students use mobile applications that can improve their academic productivity.

- Find out if students use more of entertainment related mobile applications than educational related mobile applications.

### Research Questions

- To what extent are students aware of mobile applications that can improve their academic productivity?
- To what extent do students use mobile applications that can improve their academic productivity?
- Do students use more of entertainment/social related mobile applications than educational/academic related mobile applications?

## METHODOLOGY

The research design for this study was survey research design and interview methods. The survey design and interview methods were chosen to investigate this study as it is the most suitable method to gather information on behavioral patterns. The target population for this study comprised all 28,000 students of the Rivers State University (Source: www.rsu.edu.ng). A purposive sampling technique was used to arrive at a sample size of 260 students. Students used for this study were from thirteen (13) Faculties of the University. For

the successful conduct of this research work, the instrument that was used for data collection was a questionnaire with 41 items titled “Awareness and Use of Innovative Educational Mobile Applications among Students”. The instrument comprises a 4-point Likert type rating scale which ranged from one (lowest response) to four (highest response). Individual interviews were also conducted to get an indebt response from students about their awareness and use of innovative educational mobile applications. Mean was used for data analysis and a standard reference mean of 2.50 was adopted for the purpose of determining the degree of students’ awareness and use of innovative educational mobile applications in Rivers State University. Thematic analysis was used to identify recurring patterns and themes in the interview responses. The transcribed interviews were coded and categorized into relevant themes.

## RESULTS

**Research Question 1:** To what extent are students aware of mobile applications that can improve their academic productivity?

How aware are you that these mobile apps exist and are available for download on mobile devices?

<b>Fully Aware</b>	<b>Moderately</b>	<b>Slightly Aware</b>	<b>Not Aware</b>
4	3	2	1

**Table 1: Awareness of Mobile Application among Students**

S/N	ITEMS	4	3	2	1	$\bar{x}$
1	Dictionary app	107	32	31	90	2.6
2.	Office Suite	132	56	60	12	3.18
3.	Social media app/online video app (YouTube)	201	34	20	5	3.66
4.	Online education provider app (Coursera, Udemy, Khan academy)	53	76	23	108	2.28
5.	Classroom app (Google Classroom, Edmodo)	117	39	18	96	2.76
6.	E-book app (Google play books, Amazon kindle)	139	12	24	85	2.78
7.	Question and Answer app (Quora app)	21	19	23	197	1.48
8.	Professional networking app (LinkedIn)	33	10	34	183	1.59
9.	Lecture capture app ( NotesPlus, SoundNote, OfficeLens)	12	20	27	201	1.40
10.	Revision app (Exam Countdown, GoConqr, Study Blue)	0	0	0	260	1
11.	BenchPrep( Exam Prep app)	0	0	0	260	1
12.	Student Planner apps(My Class Schedule, Timetable, Class Timetable)	19	10	44	113	1.18
13.	Video call app (FaceTime, Skype, Imo, Tango)	209	27	11	13	3.66
14.	Student safety app (Bsafe, Circle of Six, React Mobile)	2	0	13	245	1.07
15.	Handwriting app (Penultimate)	11	31	23	195	1.45
16.	Quiz app (Socrative )	27	57	32	144	1.87
17.	Wake-up app (Alarmy, Sleep Cycle)	16	11	62	171	1.52
<b>Cluster Mean</b>		<b>2.03</b>				

Table 1 above which represents the response of student to the extent to which they are aware of various mobile apps that can improve their academic productivity. Hence the data collected for items 1,2,3, 5,6 and 13 from Table 2 above show mean scores above 2.5, while data collected for items 4, 7,8,9,10, 11,12 ,14,15,16 and 17 all show mean scores below 2.5 and

grand mean of 2.12. This therefore implies that the extent to which students are aware of mobile apps that can improve academic productivity is low.

**Research Question 2:** To what extent do students use mobile applications that can improve their academic productivity?

Do you use the following apps?

High Extent	Moderately	Low Extent	Not at all
4	3	2	1

**Table 2: Mobile Application Use of Students**

S/N	ITEMS	4	3	2	1	$\bar{x}$
18	Dictionary app	63	94	43	117	2.83
19.	Office Suite	37	86	157	108	3.18
20.	Social media app/online video app (YouTube)	93	148	16	3	3.27
21.	Online education provider app (Coursera, Udemy, Khan academy)	12	39	102	107	1.83
22.	Classroom app (Google Classroom, Edmodo)	22	56	116	66	2.13
23.	E-book app (Google play books, Amazon kindle)	16	41	71	132	1.77
24.	Question and Answer app (Quora app)	13	9	15	223	1.28
25.	Professional networking app (LinkedIn)	7	9	12	232	1.24
26.	Lecture capture app ( NotesPlus, SoundNote, OfficeLens)	0	0	0	260	1
27.	Revision app (Exam Countdown, GoConqr, Study Blue)	0	0	0	260	1
28.	BenchPrep( Exam Prep app)	0	0	0	260	1
29.	Student Planner apps(My Class Schedule, Timetable, Class Timetable)	0	0	0	260	1
30.	Video call app (FaceTime, Skype, Imo, Tango)	131	59	43	27	3.13
31.	Student safety app (Bsafe, Circle of Six, React Mobile)	0	0	0	260	1
32.	Handwriting app (Penultimate)	0	0	0	260	1
33.	Quiz app (Socrative )	0	0	0	260	1
34.	Wake-up app (Alarmy, Sleep Cycle)	6	12	115	127	1.60
<b>Cluster Mean</b>		<b>1.72</b>				

Table 2 above represents data indicating the extent to which students use mobile applications that can improve their academic productivity. From the table, the items with mean above 2.5 are items 18, 19,20 and 30 indicating that students use the Dictionary app, Office suite, Youtube and Video call apps to a high extent. However other items have mean scores below 2.5 which is the degree of usage of mobile apps and which in turn

indicates that the extent to which students use those apps is very low.

**Research Question 3:** To what extent do students use more of entertainment/social related mobile applications than educational/academic related mobile applications?

To what extent do you use the following apps?

High Extent	Moderately	Low Extent	Not at all
4	3	2	1

**Table 3: Students use**

S/N	ITEMS	4	3	2	1	$\bar{x}$
18	Dictionary app	63	94	43	117	2.83
19.	Office Suite	37	86	157	108	3.18
20.	Social media app/online video app (YouTube)	93	148	16	3	3.27
21.	Online education provider app (Coursera, Udemy, Khan academy)	12	39	102	107	1.83
22.	Classroom app (Google Classroom, Edmodo)	22	56	116	66	2.13
23.	E-book app (Google play books, Amazon kindle)	16	41	71	132	1.77
24.	Question and Answer app (Quora app)	13	9	15	223	1.28
25.	Professional networking app (LinkedIn)	7	9	12	232	1.24
26.	Lecture capture app ( NotesPlus, SoundNote, OfficeLens)	0	0	0	260	1
27.	Revision app (Exam Countdown, GoConqr, Study Blue)	0	0	0	260	1
28.	BenchPrep( Exam Prep app)	0	0	0	260	1
29.	Student Planner apps(My Class Schedule, Timetable, Class Timetable)	0	0	0	260	1
30.	Video call app (FaceTime, Skype, Imo, Tango)	131	59	43	27	3.13
31.	Student safety app (Bsafe, Circle of Six, React Mobile)	0	0	0	260	1
32.	Handwriting app (Penultimate)	0	0	0	260	1
33.	Quiz app (Socrative )	0	0	0	260	1
34.	Wake-up app (Alarmy, Sleep Cycle)	6	12	115	127	1.60

S/N	ITEMS	4	3	2	1	$\bar{x}$
35	Tik Tok	161	23	41	35	3.19
36	Instagram	128	54	46	32	3.07
37	WhatsApp	233	17	0	10	3.82
39	Facebook	202	19	10	29	3.52
40	Twitter	37	185	18	20	2.92
41	Snapchat	69	149	11	31	2.98

Table 3 above represents data indicating the extent to which students use more of entertainment/social related mobile applications, than educational/academic related mobile applications. From the table, the items that have mean scores above 2.5 include items 18, 19, 20, 30, 35, 36, 37, 38, 39, 40 and 41 (Dictionary app, Office suite, YouTube, Video call apps, Tik Tok, Instagram, WhatsApp, Facebook, Twitter and Snapchat. However other mobile apps like Online education provider apps, Question-and-answer apps, Lecture capture app, Revision apps, E-book apps, Hand writing app, Student safety apps, Classroom apps have mean scores below 2.5. This clearly indicates that students use more of entertainment/social related mobile applications than educational/academic related.

## INTERVIEW RESULTS

### Types of Mobile Applications Used for Academic Purposes

Participants mentioned using various mobile applications, including Dictionary app, Office suite, Youtube and Video call apps.

### Sources of Awareness

Participants reported discovering academic applications through recommendations from peers, lecturers, online forums, app stores.

### Awareness among Students

Most participants expressed a belief that many students are unaware of the wide range of mobile applications available to improve academic productivity.

### Challenges in Finding and Using Mobile Applications

Challenges identified included difficulty in finding suitable applications, concerns about data access, lack of awareness about lesser-known apps, and potential costs associated with premium features.

### Frequency of Usage

Participants reported using entertainment-related mobile applications regularly, with the frequency varying among individuals.

### Most Helpful Mobile Applications

Several popular applications emerged as highly beneficial, including Dictionary app, Office suite, Youtube and Video call apps.

### Impact on Academic Productivity

Participants described how mobile applications aided them in organizing study materials, managing schedules, enhancing collaboration with peers, and improving time management.

### Challenges in Using Mobile Applications for Academic Purposes

Participants highlighted issues such as distractions from non-academic apps, compatibility problems with certain devices, and limited functionalities compared to desktop counterparts.

### Time Spent on Mobile Applications Daily

Responses varied, with some participants spending a few minutes, while others allocated several hours to academic-related mobile applications daily.

### Comparison with Entertainment and Social Apps

Participants generally agreed that entertainment and social applications tend to dominate students' mobile usage over academic-related apps.

## DISCUSSION OF FINDINGS

The results from Table 1 which addressed research question one indicates that the extent to which students are aware of mobile applications that can improve their academic productivity is low. Hence the data collected as presented on Table II above show six (6) items with mean scores above 2.5, eleven (11) items with mean scores below 2.5 and a cluster mean of 2.03. This affirms the findings of Gaffar and Kumar, (2019) which showed that less than 50% of respondents were aware of available mobile applications.

From Table 2, which presented data indicating the extent students use mobile applications that can improve academic productivity, only four (4) items have mean scores above 2.5. However other items (13) have mean scores below 2.5 which in turn indicates that the extent to which students use those apps is very low. This is similar to results from Hinze *et al.*, (2022), which showed that very little mobile app use was recorded for in-class activities or in-field activities (research).

Table 3, which represents data indicating the extent to which students use more of entertainment/social related mobile applications than educational/academic related mobile applications indicates a high usage of entertainment/social related mobile applications.

The interview findings suggest that while students acknowledge the value of academic-related mobile applications, there is a lack of awareness and accessibility. To promote their usage, universities and educators should provide guidance on discovering and utilizing these tools effectively. Addressing challenges and enhancing mobile application functionalities may further boost their integration into students' academic routines.

## CONCLUSION

From the findings of this study, it was concluded that students in Rivers State University have a low awareness and usage level when it comes to mobile applications that can improve academic performance. Also, students use more social /entertainment mobile applications than they use academic oriented mobile applications. This research provides valuable insights into students' usage patterns and perceptions of mobile applications for academic purposes. The study emphasizes the need for increased awareness, improved application quality, and targeted interventions to maximize the benefits of these applications in enhancing academic productivity.

## RECOMMENDATION

Based on the findings of the study the following recommendations were made:

1. Awareness seminars should be organized to create awareness of mobile applications that can improve academic productivity of students.
2. Workshops should be organized to demonstrate how several mobile applications can be used to enhance academic productivity.
3. Lecturers should introduce the use of academic oriented mobile applications when delivering instruction to foster meaningful usage by students.

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