

Factors Influencing the Adoption of Mobile Apps Among Young People in Nigeria. A Study of University of Uyo Students

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Abstract: This study focused on the factors influencing the adoption of mobile apps among young people in Nigeria. The survey research design was adopted and a structural questionnaire was used to collect primary data from 208 undergraduate students of University of Uyo, Akwa Ibom State. The demographic data of the respondents were analyzed using descriptive statistics, while simple regression was used in testing the hypotheses. The results showed that each of the four factors examined – performance expectancy, ease-of-use, social influence, and facilitating conditions – has significant influence on the adoption of mobile apps. Based on the findings, it was recommended that developers and marketers of mobile apps should consider and prioritize these four factors when targeting young consumers in Nigeria.

Keywords: Mobile apps, social influence, ease-of-use, performance expectancy and mobile market

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Introduction

Mobile applications (popularly known as mobile apps) have significantly impacted the manner in which business and personal activities are performed. The radical evolution of mobile apps began with the advent of mobile technology that led to the creation of mobile devices such as smartphones, tablets, smartwatches, etc. The emergence of these devices triggered the massive creation of different kinds of mobile apps to be used for diverse kinds of activities (Okonkwo, Huisman & Taylor, 2020). The use of mobile apps is changing the African society, socially, academically, economically, and politically (Murugesan, 2013). Mobile apps are software programs designed to run on mobile devices (Costupoulou, Ntaiani & Karetsos, 2016). They are mostly built to provide mobile users access to those services that are enjoyed by the users of laptop and desktop computers. The apps are generally downloaded from apps stores, which are a type of digital distribution platforms.

Nigeria is leading mobile app downloads in Africa. The number of mobile apps installed rose by 43% between the first quarter of 2020 and first quarter of 2021. This was followed by South Africa's market, which increased by 37%, while Kenya came third with an increase of 29% (Google, 2021). Nigeria became the leader in Africa due to the presence of a young and mobile-savvy population that drives a booming app culture. However, it is important to note that though Nigeria is taking the lead, there are still hundreds of thousands of apps that do not appeal to young Nigerians. Such apps do not have the basic ingredients that can trigger their adoption. Thus, the question at this point is "what are the factors that drive young Nigerians to adopt a mobile app. The answer to this question will help the developers of mobile apps to better penetrate the Nigerian market, as the country's app market is primed for greater growth, especially when the needs of young Nigerians are adequately met.

Many studies have been done on the mobile market in Africa, however, most of those studies focused on mobile phones. Only few studies were found relating to the mobile apps as a distinct segment of the mobile market. In Nigeria, the only study found, investigated the adoption of mobile apps by farmers (Okoroji & Lees, 2021). Studies were not found that focused on young people. Precisely we could not find any study on the factors that influence the adoption of mobile apps among young people in Nigeria. This study therefore seeks to examine the factors that influence the adoption of mobile apps among young Nigerians, by studying the undergraduate students of the University of Uyo, Akwa Ibom State.

Objectives of the Study

The main objective of the study is to examine the factors influencing the adoption of mobile apps among young people in Nigeria, by studying the undergraduate students of the University of Uyo.

The specific objectives of the study are:

- (i) To examine the influence of performance expectancy on the adoption of mobile apps by University of Uyo students.
- (ii) To investigate the influence of ease-of-use on the adoption of mobile apps by University of Uyo students.
- (iii) To determine the effect of social influence on the adoption of mobile apps by University of Uyo students.
- (iv) To examine the influence of facilitating conditions on the adoption of mobile apps by University of Uyo students.

Research Hypotheses

Based on the objectives, the following hypotheses were tested in null form:

- H₀₁: Performance expectancy has no significant influence on the adoption of mobile apps by University of Uyo students.
- H₀₂: Ease-of-use does not significantly influence the adoption of mobile apps by University of Uyo students.
- H₀₃: Social influence does not significantly affect the adoption of mobile apps by University of Uyo students.
- H₀₄: Facilitating conditions have no significant influence on the adoption of mobile apps by University of Uyo students.

Literature Review

Adoption of mobile app:

Okonkwo, Huisman & Tay (2020) define adoption as the user's acceptance and use of a new invention. According to GSMA (2015), adoption is explained as embracing and using a new technology. We therefore describe adoption of mobile app as the willingness to embrace and use a new mobile app.

Mobile app market

The global mobile app market in 2018 generated revenues that amounted to over 365 billion USD. In 2023, mobile apps are projected to generate more than 935 billion USD in revenue via paid downloads and in-app advertising (Statistica, 2022). There are two places where the overwhelming majority of mobile users are downloading apps. Users with iOS devices download iPhone apps from the Apple app store, while Android app users download from the Google play store. According to Buildfire (2022), there are 2.87 million apps available for downloads on the Google play store and 1.96 million apps on the Apple app store.

With over 6.3 million smartphone users across the world, it is no surprise that the mobile app industry is thriving. App usage and smartphone penetration are still growing at a steady rate, without any signs of slowing down in the foreseeable future. The average smartphone user spends 3 hours and 10 minutes each day using their devices. About 2 hours and 51 minutes of this time is spent on apps. Thus, apps account for roughly 90% of the time spent on smartphone (Buildfire, 2022).

Contemporary Theories and their Applicability to Mobile App

TRA (Theory of Reasoned Action), TPB (Theory of Planned Behaviour) Fishbein & Ajzen 1975)

Technology adoption has been studied over the years through the use of frameworks such as TRA (Theory of Reasoned Action), TPB (Theory of Planned Behaviour) and TAM (Technology Adoption Model). Fishbein & Ajzen (1975) developed TRA as the first attempt to describe user adoption of technology. TRA explains user behaviour from a social psychology point of view. Then, after some years, Ajzen (1991), developed TPB as an extension of TRA to address the limitations of TRA. In TPB, Ajzen (1991) proposed perceived behavioural control in addition to TRA's attitude and social pressure as a factor that influences intention and actual behaviour. TRA tries to address situations in which individuals have no control over. Based on the earlier model (TRA), TAM was developed by Davis (1989) and was the first to successfully analyze and interpret the adoption of various information and communication technologies in different work environments. Perceived usefulness (PU) and perceived Ease of Use (PEOU) were the two main factors used in TAM to explain the acceptance or rejection of

information technology by a person. The original TAM framework was extended in an effort to address situations outside the work environment. Thus, the first extended TAM, referred to as TAM2, was developed by Venkatesh and Davis (2000), to test four different systems in four organizations. The major difference between TAM and TAM2 is the inclusion of social influence processes and cognitive instrumental processes which were found to significantly affect user acceptance.

Unified Theory of Acceptance and Use of Technology (Venkatech et al, 2003)

In 2003, Venkatesh and other scholars developed the Unified Theory of Acceptance and Use of Technology (UTAUT). This model became the most holistic and unified model describing the new technology adoption; it synthesizes eight well-established and validated technology acceptance models and explains as much as 70 percent of the variance in intention, which is much more than the variance explained by any other of the general models on technology acceptance (Venkatesh *et al.*, 2016).

Moreover, the strongest benefit of UTAUT model is that it integrates all important variables from multiple models for technology acceptance research. Since the research in the area of mobile application adoption is not yet developed and established, applying such holistic and generic model as UTAUT will be useful for identifying key factors that influence adoption of mobile applications.

Thus, based on UTAUT, the following conceptual model was developed for this study.

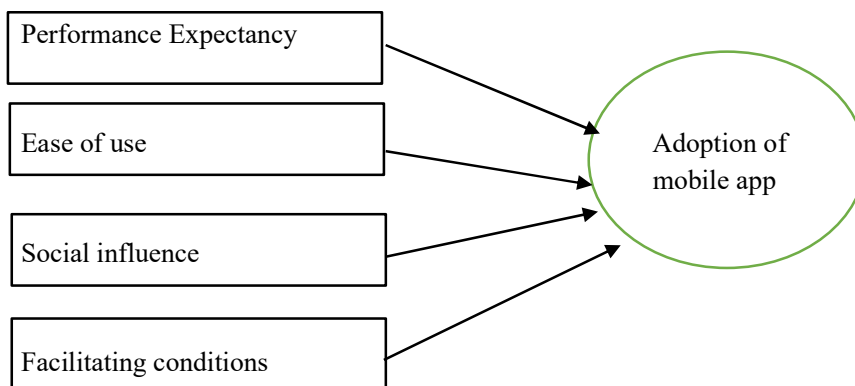


Fig 1: Conceptual model for mobile app adoption

Source: Adapted from Venkatesh *et al.* (2003).

Performers Expectancy (PE):

This is defined as the degree to which the user believes that using a technology will provide him with benefits in performing certain activities (Venkatesh, *et al.*, 2003). This construct is very important as the consumers are more attracted to the app which results in increasing their productivity (Kim & Yoon, 2011).

Ease-of-Use:

Venkatesh *et al.*, (2003) defined ease of use (effort expectancy) as the degree of ease associated with the use of the system. A technology is perceived to be useful if the consumer is able to use it without much effort (Ghalandari, 2012). Thus, user friendly apps are likely to be adopted by consumers.

Social influence:

According to Venkatesh *et al.* (2003), social influence is defined as the degree to which an individual perceives that important others believe he or she should use the new system. Acceptance of any technology is largely influenced by views and reviews of the people who are important to the consumer. Social influence is a crucial factor in marketing and consumer behaviour studies (Malik, Suresh & Sharma, 2017).

Facilitating conditions:

Facilitating conditions entail that the users have the necessary resources and knowledge that enable them to use a technology (Venkatesh *et al.*, 2003). Mobile apps are highly associated with the internet. Thus, a smartphone with good internet connectivity will facilitate the adoption of a Mobile app.

Methodology:

To achieve the objectives of this study, the survey research design was adopted. Primary data were collected from 208 undergraduate students of the University of Uyo, Akwa Ibom State, using the convenience sampling technique. the instrument used for the collection of data was a structural questionnaire, which was designed to capture the demographic characteristics of the respondents as well as the items to be used in measuring the four constructs which were presumed to have significant influence on the adoption of mobile apps.

The demographic data were analyzed using descriptive statistics, while the hypotheses were tested using simple regression at 0.5 level of significance.

Results and Discussion

Table1: Demographic Characteristics of Respondents

| Variables | No. of Respondents | Percentage (%) |
|--------------------------------|--------------------|----------------|
| Age | | |
| 16-20 years | 62 | 29.8 |
| 21-25 years | 74 | 35.6 |
| 26 – 30 years | 61 | 29.3 |
| 31 years and above | 11 | 5.3 |
| Total | 208 | 100.0 |
| Gender | | |
| Males | 106 | 51.0 |
| Females | 102 | 49.0 |
| Total | 208 | 100.0 |
| Level of study | | |
| First year | 34 | 16.3 |
| Second year | 43 | 20.7 |
| Third year | 38 | 18.3 |
| Fourth year | 53 | 25.5 |
| Fifth year and above | 40 | 19.2 |
| Total | 208 | 100.0 |
| Experience with Apps | | |
| Little Experience | 77 | 37.0 |
| Moderate experience | 65 | 31.3 |
| Sufficient experience | 66 | 31.7 |
| Total | 208 | 100.0 |
| App Category | | |
| Finance, Banking and Insurance | 18 | 8.7 |
| Travel and Life | 23 | 11.1 |
| Hobbies | 22 | 10.6 |

| | | |
|--------------------------|------------|--------------|
| Social and Communication | 26 | 12.5 |
| Tools and productivity | 18 | 8.7 |
| Shopping | 23 | 11.1 |
| News and Reading | 17 | 8.2 |
| Entertainment and sports | 22 | 10.6 |
| Games and Music | 23 | 11.1 |
| Health and Fitness | 16 | 7.7 |
| Total | 208 | 100.0 |

Table 1 above Indicates that of the 208 respondents, 62(29.8%) were between the ages of 16-20 years, 74 (35.6%) were between the ages of 21-25years, 61(29.3%) were between the ages of 26-30years, while 11(5.3%) respondents were 31 years and above. From the table, 106 respondents (51.0%) were males while 102(49.0%) were females.

The table also indicates the level of study of the students as follows: 34 respondents (16.3%) were in their first year, 43(20.7%) were in their second year while 38(18.3%), and 53(25.5%) were in their third and fourth year respectively and 40(19.2%) were in their fifth year and above. Based on their experience level,77(37.0%) of the respondents had little experience while 65(31.3) of the respondents had moderate experience and 66(31.7) of the respondents had sufficient experience. Download of app of various categories finance, banking and insurance had a response rate of 18(8.7%), travel and life 23(11.1%) hobbies 22(10.6%), social and communication 26(12.5%), tools and productivity 18(8.7%) while shopping was 23(11.1%) and others were as follows, news and reading 17(8.2%), entertainment and sport 22(10.6%), games and music 23(11.1%) and health and fitness 16(7.7%).

Table 2: Test hypothesis one

H₀₁: Performance expectancy has no significant influence on the adoption of mobile apps by University of Uyo students.

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .937 ^a | .879 | .878 | .79864 |

a. Predictors: (Constant), Performance expectancy

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|----------|-------------------|
| | Regression | 1060.951 | 1 | 1060.951 | 1663.386 | .000 ^b |
| 1 | Residual | 146.700 | 206 | .638 | | |
| | Total | 1207.651 | 207 | | | |

a. Dependent Variable: Adoption of mobile apps

b. Predictors: (Constant), Performance expectancy

Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | |
|-------|-----------------------------|------------|---------------------------|--------|--------|------|
| | B | Std. Error | Beta | | | |
| | (Constant) | 3.242 | .208 | 15.566 | .000 | |
| 1 | Performance expectancy | .523 | .013 | .937 | 40.785 | .000 |

a. Dependent Variable: Adoption of mobile apps

The table above with R value of 0.937 indicates that there is a strong relationship between the dependent and the independent variables. The R-Square value of 0.879 implies that about 88% of the variation in adoption of mobile apps was explained by Performance expectancy. The F-calculated value of 1663.386 and P-value of 0.000 implies that the model was adequate. That is, the independent variable was able to explain the dependent variable very well. The constant value of 3.242 indicates that keeping independent variable (Performance expectancy) constant, adoption of mobile apps will remain at 3.242. The coefficient of Performance expectancy was 0.523 which means that a unit change in Performance expectancy will lead to 0.523 unit change in adoption of mobile apps. The P-value of 0.000 means that the influence of Performance expectancy on adoption of mobile apps was statistically significant.

Table 3: Test of hypothesis two

H₀₂: Ease of use does not significantly influence the adoption of mobile apps by University of Uyo students.

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .932 ^a | .869 | .869 | .82889 |

a. Predictors: (Constant), Ease of use

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|----------|-------------------|
| 1 | Regression | 1049.627 | 1 | 1049.627 | 1527.713 | .000 ^b |
| | Residual | 158.023 | 206 | .687 | | |
| | Total | 1207.651 | 207 | | | |

a. Dependent Variable: Adoption of mobile apps

b. Predictors: (Constant), Ease of use

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|-------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 3.244 | .217 | | 14.941 | .000 |
| | Ease of use | .524 | .013 | .932 | 39.086 | .000 |

a. Dependent Variable: Adoption of mobile apps

The table above with R value of 0.932 indicates that there is a strong relationship between the dependent and the independent variables. The R-Square value of 0.869 implies that about 87% of the variation in adoption of mobile apps was explained by the ease of use. The F-calculated value of 1527.713 and P-value of 0.000 implies that the model was adequate, that is, the independent variable was able to explain the dependent variable very well. The constant value of 3.244 indicates that keeping ease of use constant, the adoption of mobile apps will remain at 3.244. The coefficient of ease of use was 0.524 which means that a unit change in ease of use will lead to 0.524 unit change in adoption of mobile apps. The P-value of 0.000 means that the influence of ease of use on adoption of mobile apps was statistically significant.

Table 4: Test of Hypothesis three

H03: Social influence does not significantly affect the adoption of mobile apps by University of Uyo students.

| Model Summary | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| 1 | .780 ^a | .609 | .604 | 1.67521 | |

a. Predictors: (Constant), Social influence

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|-----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| | Regression | 340.656 | 1 | 340.656 | 121.389 | .000 ^b |
| 1 | Residual | 218.894 | 206 | 2.806 | | |
| | Total | 559.550 | 207 | | | |

a. Dependent Variable: Adoption of mobile apps

b. Predictors: (Constant), Social influence

| Coefficients ^a | | | | | | |
|---------------------------|------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.259 | .712 | | 1.768 | .000 |
| | Social influence | .860 | .078 | .780 | 11.018 | .000 |

a. Dependent Variable: Adoption of mobile apps

The table above with R value of 0.780 indicates that there is a strong relationship between the dependent and the independent variables. The R-Square value of 0.609 implies that about 61% of the variation in adoption of mobile apps was explained by social influence. The F-calculated value of 121.389 and P-value of 0.000 implies that the model was adequate. That is, the independent variable was able to explain the dependent variable very well. The constant value of 1.259 indicates that keeping independent variable (social influence) constant, adoption of mobile apps will remain at 1.259. The coefficient of social influence was 0.860 which means that a unit change in social influence will lead to 0.860 unit change in adoption of mobile apps. The P-value of 0.000 means that the influence of social influence on adoption of mobile apps was statistically significant, therefore the need not to accept the null hypothesis.

Table 5: Test of Hypothesis four

H04: Facilitating conditions have no significant influence on the adoption of mobile apps by University of Uyo students.

| Model Summary | | | | | |
|---------------|-------------------|----------|-------------------|----------------------------|--|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | |
| 1 | .789 ^a | .622 | .617 | 1.64615 | |

a. Predictors: (Constant), Facilitating conditions

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|-----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| | Regression | 348.185 | 1 | 348.185 | 128.491 | .000 ^b |
| 1 | Residual | 211.365 | 206 | 2.710 | | |
| | Total | 559.550 | 207 | | | |

a. Dependent Variable: Adoption of mobile apps

b. Predictors: (Constant), Facilitating conditions

| Model | Coefficients ^a | | | | | |
|-------|-----------------------------|------------|---------------------------|------|--------|------|
| | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | |
| | B | Std. Error | Beta | | | |
| 1 | (Constant) | 1.083 | .707 | | 1.531 | .000 |
| | Facilitating conditions | .863 | .076 | .789 | 11.335 | .000 |

a. Dependent Variable: Adoption of mobile apps

The table above with R value of 0.789 indicates that there is a strong relationship between the dependent and the independent variables. The R-Square value of 0.622 implies that about 62% of the variation in adoption of mobile apps was explained by facilitating conditions. The F-calculated value of 128.491 and P-value of 0.000 implies that the model was adequate. That is, the independent variable was able to explain the dependent variable very well. The constant value of 1.083 indicates that keeping independent variable (facilitating conditions) constant, adoption of mobile apps will remain at 1.083. The coefficient of facilitating conditions was 0.863 which means that a unit change in facilitating conditions will lead to 0.863 unit change in adoption of mobile apps. The P-value of 0.000 means that the influence of facilitating conditions on adoption of mobile apps was statistically significant.

Conclusion

This study examined the factors influencing the adoption of mobile apps among young people in Nigeria. The results showed that youth's adoption of mobile apps is driven by performance expectancy, ease-of-use, social influence and facilitating conditions. Young people prefer those apps that can enhance their productivity; those apps that are useful in their everyday lives. They are more attracted to apps that increase their chances of accomplishing things more easily.

Ease-of-use is another important factor that young people in Nigeria consider in adopting a mobile app. Young people favour those apps that are easy to use. They do not like apps that take too much effort to understand and use. Apps with friendly interface are valuable to young people. Another factor that significantly drives the adoption of mobile apps among young Nigerians is social influence. Young people are easily influenced by the opinions of their peers. They want to do things that their peers are doing; play the same mobile games their peers are playing; and interact using the same apps their peers are using. Social influence is a crucial factor in understanding consumer behaviour.

Finally, there is no need to download an app that you do not have the required facilities to use. Thus, facilitating conditions significantly influence the adoption of apps by young Nigerians. For most apps to be used, people must have a good smartphone and internet connectivity.

Recommendation

Since the study has revealed that performance expectancy, ease-of-use, social influence and facilitating conditions significantly influence the adoption of mobile apps among young Nigerians, it is recommended that developers and marketers of mobile apps should consider and prioritize these four factors when targeting young consumers.

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