An Investigation of the Effects of Customer's Educational Attainment on their Adoption of E-banking in Nigeria

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Abstract
The study aimed at investigating the effects of customers’ educational attainment on their adoption of e-banking in Nigeria and adopted the extension of technology adoption model (TAM) by adding customers’ educational attainment to it. The researcher used primary data collected through administered structured questionnaire. The researcher employed the SPSS (16.0) for descriptive statistical analysis and the Structural Equation Model (SEM) as statistical test
tool using AMOS (16.0). By extending the TAM, the study concluded that customers’ educational attainment directly influence customers’ perceived usefulness and perceived ease of use and through these indirectly influence the level of adoption of e-banking by customers. The results of this study provides solid ground for developing appropriate marketing strategies to encourage the adoption of e-banking by the Nigerian banking customers. The study recommended that banks use different customers’ educational attainment levels as e-banking product designing tool, thus making adoption easier and faster; and Government should make efforts to improve the level of literacy, especially computer literacy among citizens. This will make it easier for customers to operate, interact and access e-banking platforms in Nigeria.

Keywords: E-banking; Customers’ educational attainment; Perceived usefulness; Perceived ease of use

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INTRODUCTION

The emergence of electronic banking has been an issue of increasing interest in recent years for both academics and practitioners, as the changes taking place in the field are clearly observable [1]. In Africa, commercial banks introduced the e-banking systems late 20th century to improve their operational services, reduce costs and increase productivity [2]. Consequently, there is need to identify factors which promote or inhibit e-banking adoption and affect customer's perception and attitudes towards the adoption of the system. These issues are important since they are germane in helping the banking industry formulate future e-banking system, strategies and policies. Therefore, the need to have a better understanding of the factors influencing customer's attitude towards e-banking adoption, as an identified gap in the literature and encourage further e-banking adoption in developing countries such as Nigeria cannot be overemphasized.

Electronic banking (e-banking) can be defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels [3]. The new information and communication technology (ICT) is almost becoming the most important factor in the future development of banking which influences banks' marketing and business strategies [4]. E-banking adoption is being progressively used as a channel of distribution for financial services due to the rapid advances in information technology (IT) and intensive competition in the banking sector [5]. Customers access e-banking services via internet using intelligent electronic devices such as personal computer (PC), automated teller machine (ATM) or telephone.
Though several factors such as perceived usefulness, perceived ease of use, perceived risk, perceived trust, and so on [6,7] have been identified as determinants of customers’ adoption attitude of e-banking system, the specific role being played by level of literacy or educational attainment of customers in determining the e-banking adoption attitude of customers has not been researched in Nigeria. Low level of literacy has been identified as one of the factors affecting the growth and development of Nigerians and the country as a whole. Advancement in technological innovations such as e-banking will likely be better appreciated with improved level of literacy among the people of the country. This study will examine the effects of customers’ educational attainment on their attitude toward adopting e-banking in Nigeria in addition to other factors such as perceived usefulness, perceived ease of use, perceived risk and perceived trust being an extension of technology acceptance model (TAM) (Figure 1).

**Figure 1:** Conceptual Framework of the Study

- Customers’ educational attainment will positively influence the ebanking adoption attitude of customer.
- Customers’ educational attainment will positively influence the perceived ease of use of e-banking by customer.
- Customers’ educational attainment will positively influence the perceived usefulness of e-banking by customer.

The recent stance of the regulatory agency on the mandatory adoption of e-banking by all customers brought about by the introduction of the cashless policy heightens the relevance of this study. Also, quality of e-banking services delivered by banks through the identified e-banking platforms has been perceived as a competition tool and strategy by banks in the Nigerian banking industry. All banks in the country had been found to have keyed into the use of e-banking as the latest means of serving their numerous customers. Both practitioners and researchers have a strong interest in understanding why people
accept information technology so that better methods for designing, evaluating, and predicting how users will respond to new technology can be developed.

The study will bring the attention of the stakeholders in the industry, especially the banking institutions and the regulatory body and the government to these identified inhibiting factors to the seamless adoption of the e-banking system and how they can stem the trend of its effects on the banking customers in Nigeria. The findings are expected to be of significant use to banks and other financial institutions offering or planning to offer e-banking solutions in the nearest future. It will also assist banks in developing e-banking strategies as well as the smooth implementations of same.

Academically, the study will expand the wealth of knowledge of users on the extension of TAM with other identified factors influencing e-banking adoption attitude of customers in Nigeria. Also, the study will present better understanding of structural equation modeling (SEM), especially in analyzing both direct and indirect relationships among identified variables in the study. Specifically, the study will further enhance the benefits derivable from using SEM to investigate the factors influencing the e-banking adoption attitude of customers in Nigeria, especially customers’ educational attainment. Learning the critical role of factors influencing the e-banking adoption attitude of customers can guide researchers as well as bank managements to design different users’ interface for different e-banking customers, and consequently achieve high user usage in different application areas.

The study will also help the government in the formulation of its financial system strategies and achievement of its Vision 20-20 of Nigeria becoming one of the 20 most industrialized nations in the world as this will ease the payment and transfer of funds for foreign/ international business transactions. Researchers and practitioners have strong interest in understanding why people accept information technology so that better methods for designing, evaluating, and predicting how users will respond to new technology can be developed.

LITERATURE REVIEW

The propagation and rapid advances in technology-based systems are leading to fundamental changes in how companies interact with customers Ibrahim, Joseph and Ibeh cited [7]. First Data [8] opined that today’s consumers are used to having technology integrated into most aspects of their work and personal lives; banking is no exception. As consumers increasingly use technology in their day-to-day lives, many expect the convenience of high-tech tools from their banks and other financial institutions.

This study adopts the definition given by Dogarawa [9] who defined e-banking as the delivery of banking services and products through the use of electronic
means irrespective of place, time and distance. Such products and services can include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money [10,11]. The popular services covered under e-banking include Automated Teller Machines (ATM), Credit Cards, Debit Cards, Electronic Funds Transfer (EFT) System, Cheques Truncation Payment System, Mobile Banking, Internet Banking, Telephone Banking, and so on. Some of the services customers can have access to via e-banking include account balance inquiry, details of transactions, transfer of money between accounts, full statements of account, access to credit facilities and profitability indices, payment of bills, making request for bank rates [12,13].

Recent developments in Nigeria, such as the introduction of mobile telephone in year 2000 and improved access to personal computers and Internet service facilities have added to the growth of electronic banking in the country [14]. Despite the investments and the availability of the banking systems via Internet, banks find it difficult to persuade banking customers to adopt electronic banking [6]. Therefore, it is necessary to identify the main barriers that hinder the adoption of the e-banking system by banking customers in Nigeria as well as their attitude towards the adoption of the seemingly mandatory e-banking system as recently introduced in the country.

**Perceived usefulness**

People tend to use an application to the extent they believe it will aid their performance [6]. Davis [6] defined perceived usefulness as the extent to which someone believes that using a certain system would enhance his performance [15,16].

**Perceived ease of use**

According to Davis cited [7], perceived ease of use is the extent to which someone believes that using a certain system will be effortless and stress-free [14]. The easier it is for a user to interact with a system, the more likely he or she will find it useful. A significant number of studies found that the perceived ease of use has an important effect on customer’s decision to adopt a new technology [1,15,17-19].

**Customers’ educational attainments**

This denotes the extent to which users or non-users are educated, however this is believed to play a significant role in determining their attitude towards technology adoption. Burke [20] opined that customers with higher educational attainments such as university degree are more comfortable in using technology,
knowing that education is often progressively correlated with the level of internet literacy of an individual [4,18]. Also, Perkins and Annan [21] opined that as more people become literates, especially in information and communication technology (ICT), the more they will derive interest in accepting online banking and its related services. Consequently, well-educated individuals may respond more quickly than less educated individuals when e-banking is introduced [18]. Harma and Dubey [22] reported that customers who are less educated are significantly more opposed to banking innovations than others with higher educational attainment. In another study conducted by Sulaiman, Jaafar and Mohezar [23] in Malaysia, it was found that only 2.9% of the respondents who have secondary education and below are adopters of e-banking, while 75% of the respondents have high level of education (university level). Also, a research by Ahmed, Singh and Mohamed [24] indicated that the high rate of illiteracy has heavily hindered the implementation of e-banking in Libya.

Among the different models that have been proposed, the technology acceptance model (TAM) adapted from the theory of reasoned action (TRA) appears to be the most widely accepted one because it is a robust theory and it is useful to explain most information system or technology and was found to be an accommodating model for it allows researchers to introduce additional constructs as a way of extending the model. Therefore, this study has adopted and adapted the technology acceptance model (TAM) as its theoretical fulcrum because it is a well-tested model concerning users’ acceptance of technology. TAM has been highly-regarded both because of its parsimony and because of its high predictive power in explaining IT acceptance behavior across various contexts [25,26].

Meanwhile, in its adoption, its constructs (perceived usefulness and perceived ease-of-use) were extended to include perceived risk, perceived trust and customers’ educational attainments. TAM posited that attitude towards a certain system is based on two basic constructs: perceived usefulness and perceived ease of use [27]. From the concept of TAM, perceived ease of use is defined as the extent to which a user believes that using the system will be effortless and stress-free, while perceived usefulness is defined as the degree to which someone believes that using the system will improve his performance [28]. The efficiency, value and accomplishment of a system can only be authenticated by its level of users’ acceptance through its ability to fulfill their desires [27].

Though several factors such as perceived usefulness, perceived ease of use, perceived risk, perceived trust, and so on have been identified as determinants of customers’ adoption attitude of e-banking system, no research has been conducted in Nigeria to examine the specific role being played by level of literacy or educational attainment of customers in determining their e-banking adoption attitude. Therefore, this study will examine the effects of customers’ educational attainment on their attitude toward adopting e-banking in Nigeria in addition to
other factors such as perceived usefulness, perceived ease of use, perceived risk and perceived trust being an extension of TAM.

RESEARCH METHODOLOGY

The study is a basic research in that it explored the situation general to various organizations/people in order to generate knowledge and contribute to the understanding of phenomena [29,30]. Survey research strategy was used in this study for it is an approach most suited for gathering descriptive information, especially in the field of social and management sciences, without any attempt to manipulate or control them; it is quick and cost-effective as compared to observation or experimental method [31]. In survey research, data and information are collected mainly through the use of questionnaires as a tool administered either through mails or personal interview [30].

The study population covers all bank customers in Nigeria, specifically users and prospective users of e-banking, which runs into millions in number. Convenience sampling involves the drawing of sample from that part of the study population which is easily accessible and convenient [32]. This is because the method provides opportunity for the researcher to select sample members who can provide required information and who are available to participate in the study by Samuel, et al. [33]. For ease of conducting the study, 500 bank customers were targeted as sample for the study and these were randomly chosen at public places in Ibadan, Nigeria. The choice of Ibadan is due to its size acclaimed to be the biggest city in West Africa [34] which is expected to be a good representation of developed commercial locations in Nigeria, with good presence of all banks and many bank customers, especially those who are expected to adopt e-banking system and services being offered by banks in Nigeria today. In research studies, a sample has to be obtained if it is not possible to include all the subjects in the study population [32]. The sample size for this study was computed using Cochran’s [35] method through which the minimum sample size of 385 was obtained [35,36].

The primary data used in this study were collected through survey method with the administration of questionnaires on respondents who are customers of banks in Ibadan, Nigeria. The choice of questionnaires as the main instrument of data collection for this study is because it is the major and widely used survey instrument for direct information collection [37]. It is also identified as the most fitted and applicable instrument for the kind of study intended. Also, it is easier and quicker to get data from the respondents through the use of questionnaires Bakkabulindi [38]. Though the construction of the questionnaire is time-consuming and somehow difficult, the time spent at this stage of the survey is found to be extremely valuable [37-42]. The questionnaire which was adapted, [33] which is divided into two sections with the first section capturing the demographic data of respondents and their choice of e-banking usage, platforms
and services accessed. The other section featured various questions related to the constructs which aimed at providing answers to the research questions and hypotheses raised. The study made use of the Likert scale, which measures the intensity or degree of agreement by the respondent to a statement that describes a situation, phenomenon, item or a treatment. The scale ranges from strongly agree, to agree, indifferent, disagree and strongly disagree respectively.

The questionnaires used as the data collection instrument for the study were personally administered by the researcher at busy public places in the city of Ibadan, Nigeria, while the data gathered were used to test the validity and reliability of the research model. A total of 500 copies of questionnaires were administered on respondents, while 488 (97.6%) were returned and out of which 9 were found invalid (ticking more than one option for a question) and/or incomplete, thus leaving 479 usable for analysis, which is 95.8% of the total copies of questionnaires administered. The high rate of returns recorded was as a result of the personal involvement of the researcher in administering the questionnaires and on-the-spot responses got from most of the respondents.

Data from the field were compiled, sorted and coded to generate the essential quality and accurate data usable for subsequent and necessary analysis. These were inputted into the computer system using the Statistical Package for Social Sciences (SPSS, 16.0) which was used for the descriptive statistical analysis. Similarly, AMOS (16.0) statistical package was used for the SEM analysis. Structural Equation Model and Path analysis were conducted on the data gathered to establish the extent to which the observed exogenous variables (perceived ease of use, perceived usefulness and customers’ educational attainment) influence the observed endogenous variable (e-banking adoption attitude of customers) and the strength of the relationship between variables respectively.

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

The figures in the table presented below show the educational attainment distribution of users and non-users of e-banking among the respondents who participated in the study.

Table 1 shows that all the 8 respondents who do not have any education use e-banking while all the 3 who have only primary education do not use e-banking; 44 respondents who have secondary education use e-banking, while 9 of them do not; 132 respondents who are undergraduates use e-banking, while only 4 of them do not; 175 respondents who are graduates use e-banking, while just 5 of them do not; 97 respondents who are post-graduates use e-banking, while just 2 of them do not. Therefore, it can be construed that respondents with higher educational attainment which constitute 86.6% of the respondents are better adopters of e-banking compare to the sparsely educated who constitute just
13.4% of respondents used for the study.

Table 1: Educational Attainment and E-banking Adoption of Respondents

<table>
<thead>
<tr>
<th>EDUCATIONAL ATTAINMENT</th>
<th>EBANKING PLATFORM</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YES</td>
<td>N</td>
</tr>
<tr>
<td>NONE</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>PRIMARY</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>SECONDARY</td>
<td>44</td>
<td>9</td>
</tr>
<tr>
<td>UNDERGRADUATE</td>
<td>132</td>
<td>4</td>
</tr>
<tr>
<td>GRADUATE</td>
<td>175</td>
<td>5</td>
</tr>
<tr>
<td>POSTGRADUATE</td>
<td>97</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>456</td>
<td>2</td>
</tr>
</tbody>
</table>

**DATA ANALYSIS AND RESULTS**

Structural equation model (SEM) was the statistical tool employed to ascertain the validity of the instrument used for the study. All the items were subjected to factor analysis and the factor loading of each of the construct was above the threshold. Table 2 below presents the loading of each construct and its Cronbach’s alpha respectively.

The result of the analysis demonstrated the adequacy of the hypothesized model: df=59; p=0.000; RMSEA=0.081; GFI=0.93; TLI=0.82; CFI=0.87 (Figure 2). However, the parameter of the hypothesized model was not fully free from offending estimate because some path were not up to (CR ≥ 1.96) which is the critical ratio, but the objective of the study was realized. In line with the objective of the study, having fitted the model; the structural paths were studied to evaluate the effect size from where answers to the research hypotheses were drawn (Table 3).
Table 2: Items with their corresponding loading and the reliability

<table>
<thead>
<tr>
<th>Items</th>
<th>Loadings</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEA1</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>CEA2</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>CEA3</td>
<td>.85</td>
<td>.85</td>
</tr>
<tr>
<td>PEO3</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>PEO4</td>
<td>.56</td>
<td></td>
</tr>
<tr>
<td>PEO6</td>
<td>.77</td>
<td>.82</td>
</tr>
<tr>
<td>PU4</td>
<td>.64</td>
<td></td>
</tr>
<tr>
<td>PU5</td>
<td>.66</td>
<td></td>
</tr>
<tr>
<td>PU6</td>
<td>.57</td>
<td>.69</td>
</tr>
<tr>
<td>PE1</td>
<td>.60</td>
<td></td>
</tr>
<tr>
<td>PE2</td>
<td>.65</td>
<td></td>
</tr>
<tr>
<td>PE3</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>PE4</td>
<td>.76</td>
<td>.78</td>
</tr>
</tbody>
</table>

Figure 2: The hypothesized model of e-banking use
DISCUSSION

Hypothesis 1

The estimated model shows that there is no direct link between Customers’ educational attainment and their e-banking adoption attitude. This means that customers’ educational attainment does not influence their e-banking adoption attitude.

Hypothesis 2

The results of our findings show that Customers’ educational attainment positively influence the perceived ease of use of e-banking by customers at (β = 0.07, p<0.01). Also, it was found that perceived ease of use positively influence customers’ attitude toward adopting ebanking as shown by their coefficients of (β = 0.04, p<0.01).

Hypothesis 3

It was established through the findings of the study that customers’ educational attainment positively influence perceived usefulness (β = 0.10, p<0.01), though leading to a negative influence on e-banking adoption attitude of customers (β = -0.16, p<0.01).

Table 3: Summary of the Measurement model

<table>
<thead>
<tr>
<th>Equation</th>
<th>Coefficient</th>
<th>Acceptance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEA→PU= (β 0.10)</td>
<td></td>
<td>ACCEPTED</td>
</tr>
<tr>
<td>CEA→PE= (β 0.07)</td>
<td></td>
<td>ACCEPTED</td>
</tr>
<tr>
<td>PU→EAAC= (β - 0.16)</td>
<td></td>
<td>NOT ACCEPTED</td>
</tr>
<tr>
<td>PE→EAAC= (β 0.04)</td>
<td></td>
<td>ACCEPTED</td>
</tr>
</tbody>
</table>

Customers’ educational attainment was found to have influence on their perceived usefulness and perceived ease of use, both positively, which were found to impact on the extent of their influence on the ebanking adoption attitude of customers in Nigeria. This comes as one of the benefits of using SEM to analyse the relationship and influence of variables. This means that the higher the customers’ educational attainments, the easier it becomes for them to use e-banking platforms. In the same vein, customers’ educational attainments was found to have negative influence on perceived risk (β = -0.28, p<0.01), which means that perceived risk reduces as customers’ educational attainments increases.
In summary, from the results of the SEM analysis, it was found that though CEA has no direct influence on EAAC, it positively influences both PU and PEOU, which in turn have positive and negative influence on EAAC respectively.

CONCLUSION

It can be established from the various results presented above that though customers’ educational attainments does not have direct influence on e-banking adoption attitude of customers, its significant influences on other variables cannot be overlooked. Though this did not come out same way as the findings of Al-Ashban and Burney [39], Dobdinga [4], Donnelie, Rangarirai and Tinashe [40] and Robinson and Moore [42] who found customers’ educational attainments as a significant factor influencing e-banking adoption attitude of customers, the difference in findings came as a result of using SEM to analyse the data gathered for this study and this made it possible to establish that customers’ educational attainments is a significant secondary factor which affect other factors in influencing e-banking adoption attitude of customers.

From the study, it was found that perceived ease of use influences ebanking adoption attitude of customers, though negatively. This is in consistence with the findings reported by Gerrard and Cunningham [42], Howcroft et al. [43], Jahangir and Begum [44] and Rahmath et al. [7] in their studies on the e-banking adoption attitude of customers.

Meanwhile, perceived usefulness which formerly counts as one of the main factors influencing the e-banking adoption attitude of customers according to the findings of Ayo et al. [6] Jahangir and Begum [44] and Rahmath et al. [7] has now been found to have seemingly insignificant influence on customers. This may be due to the fact that more emphasis is now placed on the perceived ease of use and perceived trust. Meanwhile, this is in support of the findings of Cheng, Lam and Yeung [45] who found that perceived ease of use does not significantly influence e-banking adoption attitude of customers.

Whereas TAM posits perceived ease of use and perceived usefulness as the two basic variables, by extending the TAM, the study has found that customers’ educational attainment directly influence both the perceived usefulness and ease of use of e-banking and through these indirectly influence the level of adoption of e-banking by customers.

This study provides bank managements with significant information on the various factors influencing e-banking adoption attitude of customers. It will also assist them in formulating strategies toward increasing the adoption rate of e-banking in Nigeria. From the findings of the study, banks are provided with better
understandings which can help them in redesigning their e-banking strategy toward incorporating the various highlighted expectations and challenges of customers in Nigeria.

In conclusion, the implications of this study includes need for enhanced customers' education (improved awareness campaign); improved development of telecommunication facilities in the country and reduced cost of access; and enhanced awareness and resolution of security and privacy issues; banks should give attention to the inhibitors or perceived risk factors of e-banking adoption in order to retain existing customers as well as attract new ones.

REFERENCES


