Predicting ATM Bank Customers Satisfaction and Continued Usage in Developing Countries Using Expectation Confirmation Model

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ABSTRACT

The advent of internet technology has brought significant changes to the way services are rendered especially in the banking sector. From the barter trading system to cash then cheques, the card technology has proved its onions beyond doubt. Consequently, most financial transactions in developed economies of the world are card driven. Unfortunately, despite deliberate efforts by financial institutions to open up access through these innovative channels, constant resistance and high patronage of older payments methods is still being witnessed in Nigerian banks. This study sought to understand bank customer's satisfaction and continuous usage of Automated Teller Machine (ATM) technology using the Expectation Confirmation Model (ECM). 190 responses were obtained using an online questionnaire. Structural Equation Model (SEM) was used to analyze the ECM variables. The result showed a significant correlation between customer satisfaction and continued usage as well as perceived usefulness to confirmation. It concluded that bank customers would continue to patronize ATM services if after evaluation (confirmation), the performances of the technologies are found to be satisfactory. The study provides financial institutions, bank customers and researchers a clearer understanding of the underlying theory behind users continued usage of ATM technologies in developing countries.

Keywords: Automated Teller Machine (ATM), bank customers, continuous usage, confirmation, Pre-expectation, information system (IS)

1. INTRODUCTION

The internet revolution has brought dramatic changes to banking sector. The internet has made it possible for financial institutions particularly banks to deliver services to customers using different electronic channels (Tseng, Han & Su, 2017; Chan, 2013). In today’s business environment, globalization and international experience has become critically important, hence, Ayo et al. (2011) posited that the banking industries can no longer get away with operating loosely connected groups of businesses that happen to be located around the world, but must tactically synchronize their operations. In their report, Market Intelligence & Consulting Institute (MIC) as quoted by Tseng et al (2017) highlighted three areas in the banking sector that are experiencing tremendous innovations. These include digital innovation applications and payments including digital banking application, mobile payment, and third-party payment. Unfortunately, series of challenges are currently bedeviling ATM usage and patronage in developing countries especially Nigeria. These include non-availability of ATM machines in rural dwellings as customers in rural areas sometimes travels far distances to use ATMs. Reliability of service is another major challenge as most ATM galleries are becoming shadows of its past either due to out of service, short of cash or characterized by long queues especially during public holidays, festivals, weekends etc.

At a keynote address at the 8th Annual Conference of the Chartered Institute of Bankers of Nigeria in Abuja, the Central Bank of Nigeria Governor enlisted some challenges affecting usage of e-payment systems in Nigeria to include security issues, resistance of target customers to patronize and embrace new products among others. Issues of fraudsters stealing ATM owner’s card numbers and PINs using software, cloning of ATM cards to be used with stolen PIN in stealing funds from victim’s accounts, armed robbers accompanying users to ATM locations to collect all cash withdrawn from ATM machines, long queue at some ATM centres among others Central Bank of Nigeria website (2016).
These challenges are threats to the technological penetration and sustainability in Nigeria and calls for concern Osang (2017). Hence, the following questions were asked:
What are the factors responsible for customer’s continuance intention to use ATMs in developing countries like Nigeria and what is the relationship between perceived usefulness, expectation, confirmation, satisfaction and continuous usage of ATMs in Nigeria?

1.1 The Expectation Confirmation Model (ECM)
The study adopted the expectation confirmation model as the theoretical framework. The expectation-confirmation model was first proposed by Oliver (1980). In consideration of the emerging trends in the computing world, Bhattacherjee (2001) modified the Expectation confirmation theory (ECT) and integrated it with the theoretical and empirical findings from previous information system research to investigate the continuous intentions to re-use online banking services. The theory addresses information system continues usage behaviour. The variables in the model include perceived usefulness, satisfaction, confirmation and continuous usage. It is observed that since the formulation of the ECT theory, up to the ECM model, there has been mixed findings on the variables of the model with respect to the context, information systems, technologies, users etc (Susanto, Chang, & Ha, 2016; Joo, Park, & Shin, 2017). The impacts of customer satisfaction and continuous usage of ATMs in Nigeria especially in the FCT being Nigeria’s capital city have not received much attention. Being the capital of the most populous black nation with an estimated population of 198 million (National population commission (2018)), studies around technology adoption and sustenance is crucial.

This study evaluated the impacts of customer satisfaction and continued usage of ATMs in Nigeria especially in the FCT using the ECM model. The specific objectives of the study was to investigate and analyze bank customers ATM continued usage perceptions using the ECM model and structural equation modelling methodology. Findings from this study would widen the general understanding and contribute to literature on customers’ continuance usage of banking services, increased patronage of banking services and profitability for banks in developing countries.

2. RELATED LITERATURE

2.1 The Expectation Confirmation Theory
The expectation confirmation theory (ECT) suggests that the level of satisfaction derived from the usage of a system determines the users' intention to repurchase the product. It stated that for a buyer to purchase a product/service, initial expectation is first developed at time (t1). After purchase, assessment of its performance is confirmed through actual usage of the product/service at time (t2). At the evaluation stage, if the pre-expectation is greater than the actual performance after usage (negative expectation), the buyer cancels repurchase intention. On the other hand, positive expectation is experienced when actual performance is greater than pre-expectation. Confirmation is said to be zero when expectation meets buyers' expectation (Churchill and Surprenant, 1982). The diagram of the ECT is presented thus

![Figure 1: Expectation Confirmation Theory; Oliver 1977)](image-url)
In order to effectively explain and predict continued usage of information systems and provide a clear comprehension of the ECT, Bhattacherjee (2001) modified the ECT to the expectation confirmation model shown

![Expectation Confirmation Model; Bhattacherjee (2001)](image)

The model suggests that the level of expectation and confirmation affect users' satisfaction. On the other hand, users continued usage of an information system is determined by users' satisfaction and perceived usefulness Bhattacherjee (2001). Limayem and Cheung (2008) also extended the ECM to include habit as a moderating factor between continuance intention and continued use. Their findings concluded that the strength of intention as a predictor of continuance is weaker at high levels of IS habituation. Along the same line of research, Thong et al. (2006) and Hong et al. (2006) extended Bhattacherjee’s revised ECM and validated different paradigms in the context of the mobile Internet. Their results suggested that their extended ECM had good explanatory power and they concluded that an ECM can provide supplementary information that is relevant to understanding continued IT use. The continuous usage of online services by online community members were studied by Jin, Yoon & Ji (2013) using the decomposed ECT. The result showed that the positive disconfirmation of the purpose value and the positive disconfirmation of the entertainment value drive satisfaction. Satisfaction and affective commitment on the other hand predict continuance intention.

While combining the ECT and Task technology fit theory to study the virtual learning systems Lin (2012) revealed that perceived fit and satisfaction influences intention to continue using virtual learning system (VLS). The work further revealed that perceived fit and satisfaction have a direct link with perceived impacts on learning with respect to effectiveness, productiveness and helpfulness of VLS usage. Huang, Wu & Chou (2013) studied users of data mining tools using an integrated ECT, TTF and habit construct. The result shows that confirmation, perceived usefulness, and task-technology fit are predictors of user satisfaction. User satisfaction, perceived usefulness, and habit intend predict continuance intention. Similarly, the theory of network externalities was combined with ECT to predict social virtual world users. It was reported that perceived enjoyment is the main predictor of satisfaction. It was also concluded that satisfaction is a weak predictor of the continuance intention. Perceived aggregate network exposure moderates the relationships that affect the IT continuance intention.

In 2015, the activities of massive open online courses (MOOC) users were investigated using the expectation confirmation theory. The result showed that confirmation and perceived reputation predict satisfaction. Perceived usefulness, satisfaction, and perceived enjoyment predict also continuance intention Alraimi, Zo, & Ciganek (2015). Bataineh et al (2015) investigated the relationship between social networking sites (facebook) users continued usage attitude using four prominent information system theories namely Davis’s Technology Acceptance Model Davis TAM (1989), Ajzen’s Theory of Planned Behavior (TPB), Expectation confirmation theory (ECT), Unified Theory of Acceptance and Use of Technology (UTAUT). The strongest predictors based on beta values, on both users’ satisfaction and continuance intention to use Facebook was subjective norms, perceived enjoyment, perceived usefulness, perceived ease of use, and perceived trust respectively.

While investigating previous literatures from 2005–2014 through a meta-analysis of 46 journal and conference proceedings, Hui-Min, Chin-Pin & Yung-Fu (2016) found confirmation and perceived usefulness predicting user satisfaction. Confirmation, perceived usefulness, habit, and satisfaction on the other hand predicted continuance intention. Habit was however influenced predicted primarily confirmation and perceived usefulness.
Furthermore, Anshar, Naili, Andriyansah & Mashur (2018) confirmed that trust influences good performance as the antecedent of perceived usefulness and satisfaction. And that perceived usefulness positively influences satisfaction. Defined from the post experience dimension, satisfaction or dissatisfaction is seen as a product of the past positive or negative experiences by users of products or technologies (Porumbescu 2016). In their research, Veeramootoo, Nunkoo, & Dwivedi (2018) confirmed the significant influence of satisfaction on users’ continuance usage of e-tax filing system. Further on the MOOC continued usage using ECT and TTF as theoretical foundation, Islam et al (2017) concluded that perceived usefulness t2, perceived usability, satisfaction with the service has a significant effect on continuance intention. Perceived usability (t2), usefulness confirmation, usability confirmation positively affects satisfaction with MOOC services. Similarly, the work of Ouyang et al (2017) on continued usage of MOOC services also revealed the relationships among the following variables: Students’ extent of confirmation influenced perceived usefulness. Extent of confirmation and perceived usefulness influenced satisfaction. Perceived usefulness influenced satisfaction. Perceived usefulness and satisfaction influenced continuance intention. Extent of confirmation influenced perceived task-technology fit. While TTF failed to influence satisfaction on one hand, it had a significant relationship with continuance intention.

In determining lifestyle improvements using the ECM and e health/m health activities, Leung & Chen (2017) conducted a telephone survey of 1,007 respondents in Hong Kong. The result showed that (a) satisfaction positively and significantly influences users’ continuance intention to use health related applications (b) that the level of confirmation is positively related with satisfaction using health-related information applications (c) that confirmation significantly predicted satisfaction (d) that perceived usefulness influences users (i) satisfaction (ii) continuance intention to use health-related information applications. In addition to the above mentioned literatures, the ECM has been applied to investigate the continued use of several information systems and technologies in different context. Some of them include social networking sites (Bataineh, Al-Abdallah & Alkharabsheh (2015), students’ continued learning behaviour using LMS (Tan & Shao1 2015), mobile smartphone banking services (Susanto et al, 2016), university students’ continuance intention about Massive Open Online Courses (MOOCs) (Ouyang, Tang, Rong, Zhang, Yin & Xiong (2017), digital textbooks (Joo, Park, & Shin, 2017)) among others.

Hence, the research hypotheses for this study are stated thus:

- **$H_1$:** There is a significant relationship between confirmation and satisfaction such that as confirmation of ATM increases satisfaction increases.
- **$H_2$:** There is a significant relationship between confirmation and perceived usefulness such that as confirmation of ATMs functionality increases, perceived usefulness increases.
- **$H_3$:** There is a significant relationship between perceived usefulness and satisfaction such that as perceived usefulness of ATM increases, customer satisfaction increases.
- **$H_4$:** There is a significant relationship between satisfaction and continuance intention such that as satisfaction increases, continuance intention increases.

From the ongoing, there is an absence of literature that adopted the ECM model as theoretical framework in determining the level of bank customers’ satisfaction and continued usage of ATM technology in the Federal Capital Territory in Nigeria. The research model for this work is presented thus:

![Figure 3: The research model; Author](image)
3. METHODOLOGY

3.1 Research Design
The case study research design allows investigators to retain the holistic and meaningful characteristics of real life events. In this study, the sample had the total of 180 respondents (bank ATM users) using convenient sampling. An online questionnaire was used as the research instrument. The use of online surveys allowed for more visual, flexible and interactive research (Taylor, 2000). Once the initial questionnaire was developed, a pre-test of the data collection instrument was conducted for refinement. Twenty students outside the sample participated in the pre-test using the convenience sampling method. After receiving feedback from the pilot study, the questionnaire was corrected, refined and enhanced before immediately launching a full-scale self-administered survey.

3.2 Instrument Development
The questionnaire was developed in two parts, Open-ended and closed-ended questionnaires. The first section of the questionnaire collected characteristics data of the respondents that included gender, age group, education level, occupation. The second part of the questionnaire was on specific questions such as perceived usefulness, confirmation, satisfaction and continuance intention. The questionnaire was distributed to 190 ATM customers and the rating was based on a seven point Likert scale (1= Strongly Satisfied, 2= Satisfied, 3= Slightly Satisfied, 4= Neutral, 5= Slightly Dissatisfied, 6= Dissatisfied, 7= Strongly Dissatisfied). The responses were analyzed using structural equation modelling (SEM) (Smart PLS) to analyze the structural relationship between measured variables and tested hypotheses. SEM is a multivariate statistical analysis technique used to analyze structural relationships (Tenenhaus, 2005). This technique uses the combination of factor analysis and multiple regression analysis.

3.3 Reliability and Validity
The outer and inner models were considered for analysis. The outer model measures the relationship between the indicators and the latent variables (LVs) based on criteria such as: uni-dimensionality, internal consistency reliability, indicator reliability, convergent validity and discriminant validity since our model is a reflective model.

4. RESULTS AND DISCUSSIONS

4.1 Demographic Variables
Out of the 190 respondents, 109 were female and 81 male. In terms of their age-group, majority of about 54.7 fall into 31 – 40 years of age bracket followed by 40.5% in the brackets of 21 – 30. 65.8% of respondents were single representing a majority. With respect to academic qualifications all respondents had completed tertiary education possessing either a BSc or MSc qualifications. In terms of their occupation, 35.8% were in public/civil service, 32% work in private organizations and 16.8% self-employed.

4.2 Measurement Model Analysis
Since the model is a reflective model, the following criteria were used to assess the measurement model: uni-dimensionality, internal consistency reliability, indicator reliability, convergent validity and discriminant validity.

Unidimensionality: From figure 6, all items loaded significantly on their latent variables as result showed that item loadings were above the minimum threshold of 0.6. Hence there was high evidence of unidimensionality with the four constructs. Internal Consistency Reliability (CR): Using the composite reliability criteria, all constructs in the model were above the minimum threshold of 0.6. Hence, there was sufficient evidence of internal consistency reliability among the items of the variables in the model.

Indicator Reliability: This criterion measures how much of the indicator variance was explained by the corresponding latent variables (LV). Values should be significant at a 0.5 level and higher than 0.70. All other items used in the questionnaire had values lower than 0.7. To test for significance, from the t-statistics of the inner model, only latent variables of perceived usefulness to satisfaction had values lower than 2. All other constructs had t-values greater than 2. Hence there was sufficient evidence of indicator reliability.

Convergent Validity: From the average variance extracted (AVE) values extracted from table 6 below, all constructs showed values greater than the 0.50 threshold. This implies that the latent variables showed enough evidence of convergent validity.
Discriminant Validity: From the squared AVE values shown in table below, there was strong evidence of discriminant validity. For this condition to be satisfied, the diagonal elements must be higher than any other corresponding row or column entry Barclay et al., (1995). Consequently, all items loaded highest on their targeted constructs as showed in table 1.

Table 1: Measurement model Indicators

<table>
<thead>
<tr>
<th>Construct</th>
<th>CR</th>
<th>AVE</th>
<th>Conf.</th>
<th>Cont.</th>
<th>Puse</th>
<th>Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmation</td>
<td>0.938</td>
<td>0.790</td>
<td>0.924</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuance Intention</td>
<td>0.938</td>
<td>0.834</td>
<td>0.857</td>
<td>0.913</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Usefulness</td>
<td>0.870</td>
<td>0.628</td>
<td>0.859</td>
<td>0.820</td>
<td>0.819</td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>0.947</td>
<td>0.790</td>
<td>0.889</td>
<td>0.871</td>
<td>0.793</td>
<td>0.903</td>
</tr>
</tbody>
</table>

Table 2: Showing sample statistics

<table>
<thead>
<tr>
<th>Construct</th>
<th>Original sample</th>
<th>Sample means</th>
<th>Std. deviation</th>
<th>T statistics</th>
<th>P values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmation to Satisfaction</td>
<td>0.838</td>
<td>0.841</td>
<td>0.083</td>
<td>10.117</td>
<td>0.000</td>
</tr>
<tr>
<td>Perceived Usefulness to Confirmation</td>
<td>0.859</td>
<td>0.861</td>
<td>0.023</td>
<td>37.619</td>
<td>0.000</td>
</tr>
<tr>
<td>Perceived usefulness to Satisfaction</td>
<td>0.099</td>
<td>0.096</td>
<td>0.091</td>
<td>1.097</td>
<td>0.273</td>
</tr>
<tr>
<td>Satisfaction to Continuance Usage</td>
<td>0.871</td>
<td>0.870</td>
<td>0.026</td>
<td>33.923</td>
<td>0.000</td>
</tr>
</tbody>
</table>

4.3 The Structural Model

The evaluation of the structural model involves the use of two criteria: the predictive power of the model which involves the ability of the model to explain the variance in the dependent variables and the statistical significance of the estimated model coefficients.

4.4 The Predictive Power of the Model

The predictive power of the model for the dataset was represented by the $R^2$ value on the endogenous variables. From the model in figure 1 below, 76% of the dependent variable (continuous usage) was predicted by customer’s satisfaction to use ATM machines. Similarly, perceived usefulness and confirmation jointly predicted 86% of bank customer’s satisfaction with the confirmation construct alone contributing 84%. In addition, 74% of the confirmation variable was predicted by perceived usefulness. From the ongoing, only 24% of the continuous usage variable, 14% of customer’s satisfaction and 26% of confirmation variable was unexplained by the model. This showed that the model has a very high predictive value power suitable for the study.

4.5 The Statistical Significance of the Estimated Model Coefficients

This aspect examined the path coefficients of the latent variables used in the model.

Table 3: Decision Table and Significance Level

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Paths</th>
<th>Path Coefficients</th>
<th>T-Value</th>
<th>P-Value</th>
<th>Support For Hypothesis?</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_1$</td>
<td>Confirmation to Satisfaction</td>
<td>0.838</td>
<td>10.117</td>
<td>p&lt; 0.000</td>
<td>Yes</td>
</tr>
<tr>
<td>$H_2$</td>
<td>Perceived Usefulness to Confirmation</td>
<td>0.859</td>
<td>37.619</td>
<td>p&lt; 0.000</td>
<td>Yes</td>
</tr>
<tr>
<td>$H_3$</td>
<td>Perceived usefulness to Satisfaction</td>
<td>0.099</td>
<td>1.097</td>
<td>p&lt; 0.273</td>
<td>No</td>
</tr>
<tr>
<td>$H_4$</td>
<td>Satisfaction to Continuous Usage</td>
<td>0.871</td>
<td>33.923</td>
<td>p&lt; 0.000</td>
<td>Yes</td>
</tr>
</tbody>
</table>

In structural equation modelling, path coefficients focused on the correlations between variables. When the T value of the path is greater than 1.96, the two variables on the path are considered to be correlated. The analyses of the summarized conceptual model with their t and p-values are shown in Table 4. Based on the t-values, three out of the four hypotheses were confirmed. $H_1$, $H_2$, and $H_4$ were statistically significant at the levels of p<0.000. $H_3$ was rejected even at p<0.273 significance level.
At 0.05 significance level, 500 sub-sample a Bias-Corrected and Accelerated (BCA) Bootstrap was computed and the result of the bootstrap is shown in figure 7.
4.6 Hypotheses Testing

Hypothesis one of this study stated that there is a significant relationship between confirmation and satisfaction such that as confirmation of ATM increases satisfaction increases. With a t-value of 10.117, the relationship was statistically significant at the levels of p<0.000 level of significance. By implication, if users confirm the functionality and reliability of ATMs, their level of satisfaction using the services will increase. This position was earlier supported by the work of Leung & Chen (2017) which concluded that the extent of confirmation is positively associated with satisfaction with health-related information applications use. The hypothetical relationship between users satisfaction derived from usage of ATM machines and their continuance usage was supported in this study with a t-value of 33.923 (p< 0.000). The result agrees with the findings of Veeramootoo et al (2018) that confirmed the significant influence of satisfaction on users’ continuance usage of e-tax filing system. ATM users’ experiences with existing machines in their localities play a significant role in increasing patronage of the technology. Bank customers would continuously patronize reliable and functional machines and would even serve as referrals to banks whose ATM machines are dependable.

Hypothesis 2 of this study which stated that there is a significant relationship between perceived usefulness and confirmation such that as users’ perceived usefulness increases, confirmation of the functionality of ATMs increases was supported. From the results, this position was supported with a T-value and R-values of 37.619, p< 0.000 respectively. Although the work of Ouyang et al (2017) on continued usage of MOOC services supported this relationship with extent of confirmation predicting perceived usefulness, this result showed that ATM customers perceived usefulness significantly influences the extent of confirmation. In the developing countries context where ATM services are often epileptic, perceived usefulness influences confirmation as bank customers would test for technological functionality, reliability and efficiency if that technology (ATM) is considered useful.

The hypothesized relationship between perceived usefulness and satisfaction was not supported by the result from the dataset collected from bank customers even at P-value p< 0.273, the T-value remained 1.097. This is contrary to the several findings of the proponents of the ECM model. It is important to state that in developing countries characterized by infrastructural deficit, users so much believe in the workability of technologies. That a technological innovation is perceived to be useful, does not necessarily leads to satisfaction until it is evaluated (confirmed) if satisfaction must be seen from the post usage dimension as defined by Porumbescu (2016). At the evaluation stage, if the pre-expectation is greater than the actual performance after usage, the customer becomes dissatisfied (negative expectation) and may abandon such technology Oliver (1980).

The causal relationship between bank customers satisfaction and continuance intention to use ATM technologies was supported with T-value and R-value 33.923, p< 0.000 respectively. This position was supported by the earlier works of Bhattacherjee, 2001; Lin, 2012; Alraimi et al, 2015; Chen, 2017; Ouyang et al 2017; Veeramootoo et al, 2018). By implication, bank customers would continue to patronize ATM services if after evaluation, the performances of the technologies are found to be satisfactory.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The essence of technology is to make life easier for people in all facets of life. In human computer interaction, the underlying principles behind these interactions and how these interactions results to tangible results in terms of improved services, high return on investment, performance and continued patronage of technologies is crucial. With a 76% predictive power of the model used in this study, the work present a good model for predicting bank customers continued usage intentions in developing countries in Nigeria. The hypothesized relationships stated in the research model showed significant support for three out of the four hypotheses. By implication, bank customers would continue to patronize technologies which they consider useful if after evaluation (confirmation), the performances of the technologies are found to be satisfactory.

Apart from contributions to research from the developing countries perspective with respect to users’ behavioural pattern in their interaction with technological innovations (ATMs), this work tested the reversed relationship between confirmation to perceived usefulness. It proved that the relationship is “bi-directionally” significant. The need for improvements in ATM card applications processes, employee effectiveness and speed in handling ATM issues such as fast return of cards and quick replacement of cards cannot be overemphasized. In making decisions, bank management should consider increasing access to the technologies while maintaining their functionalities, safety of customers as well as convenience in the usage of ATM services to ensure continued usage. To achieve this, financial institutions can enter to engagement with the government on public-private partnership on infrastructural development that is private sector driven.
5.2 Recommendations
Based on the findings, the followings recommendations are made:

- Emphasis need to be placed on improving reliability of services, 24/7 cash on machines and prompt repairs of broken down machines to increase customers confidence on the system.
- Banks should incorporate more functions to the ATMs such as addition of biometric services for enhanced security, more local languages (depending on the region of the country in which they are installed), voice and video tellers to the machine to encourage more reliance on the system.

5.3 Future Research
The direct relationship between perceived usefulness, confirmation and continuance usage as contained in the ECM model was not investigated in this study. Future research should consider including it and other variables unexplained by the model adopted in this study.

Studies is also required from rural communities in Nigeria where there are low levels of education, language barriers, different cultures and in rural contexts for comparison of results in order to further understand the different environmental factors determining technology continued usage.

REFERENCES

20. Islam, A.K.M. Najmul; Mäntymäki, Matti; and Bhattacherjee, Anol (2017). Towards aDecomposed Expectation Confirmation Model of IT Continuance: The Role of Usability, Communications of the Association for Information Technology...


