Information and communication technology use continuance behavioral intention: Differential effect based on socio-economic status

Bangaly Kaba, Ph.D.
Faculty of Business
Athabasca University
bangaly.kaba@fb.athabascau.ca

Abstract

In the global information society, the importance of the Internet cannot be overemphasized. Unfortunately, a case in point is Africa, where, as per 2017 statistics, only 9.4 % of the population use the Internet [25]. While tremendous efforts have been made to address global Internet penetration, recent studies and statistics still indicate the digital inequality still exists today (Yu et al, 2016) and it prevents some individuals to benefit from the digital opportunities. The aim of this paper is to understand the difference in Internet use continuance by people of different economic status. The finding showed that satisfaction is the strongest precursor for Internet use continuance and it affects stronger the socio-economically advantaged groups than the socio-economically disadvantaged people. The results imply that different strategies should be adopted to bridge the digital inequality basis of socio-economic status more specifically income levels.

Keywords: *use continuance, digital inequality, socio-economic status, income level.*

1. Introduction

In the global information society, the importance of the Internet cannot be overemphasized. Statistics showed that nearly 9.4 % of people in Africa are Internet users [25] whereas only 2.72% of Ivorian populations had access to the broadband internet [25]. This relatively low Internet penetration rate signals a problem that may threaten the economic development, governmental efficiency, and ultimately the global competitiveness of African countries.

The international agencies, the Governments as well as some private initiatives are trying to close the gap. However, digital inequality between individuals with different backgrounds prevents the socio-economically disadvantaged from exploring digital opportunities [36], [26]. Digital inequality is one of the most critical issues in the knowledge economy. While it is tempting to believe that digital inequality can be solved purely by providing better access to ICT, prior studies have suggested that providing technology access and creating conditions for its initial usage is only the first step and does not guarantee continued intention to use ICT [33], [5], [6], [21], [21], [21].

While tremendous efforts have been made to address global Internet penetration and access to the internet, recent studies and statistics still indicate that access to computers and the internet is uneven and the digital inequality still exists today [55], [51]. A case in point is Africa, where, as per 2017 statistics, only 9.4 % of the population use the Internet [25]. There have been several studies conducted to provide a better and deeper understanding of the phenomena. Yet, some key dimensions of the digital inequality have been ignored so far [55]. Indeed, an examination of studies in this area reveals that researchers continue to focus on information technology access and have paid less attention to usage. Policy makers often make the implicit assumption that the advantaged and disadvantaged people will respond to the same technology in similar ways [21]. That may not be a valid assumption.

The aim of this paper is to understand differences between socio-economically advantaged and socio-economically disadvantaged groups Internet use continuance behavioral intention. From that, we will determine what prevents disadvantaged groups from benefiting from continued Internet use. The study is conducted in Ivory Coast, a French speaking country located in West Africa.

Studies have indicated that digital inequality exists across a variety of demographic, ethnic, and geographic dimensions [34], [36]; [48]. Among these dimensions, income and education represent the most important factors in distinguishing ICT use or non-use [36]; [29]; [26]. Since education and income are very correlated, in this study, we will use income as boundary or criteria to distinguish socioeconomically advantaged from socioeconomically disadvantaged groups. More specifically, since there is a lack of reliable statistical databases in most of the developing countries, we classified socioeconomic groups from the collected data. Indeed, socioeconomically disadvantaged people are those who make up to 100 000 CFA. While their counterpart are above that income level.

2. Research Model and Hypotheses

In this research, we will integrate the technology acceptance model (TAM) and [5] model. both models present complementary perspective for understanding IT usage intention [6]. TAM is theoretically a cross-sectional model in that it predicts it usage based on user perception while [5]'s model is a longitudinal model where pre-usage expectations are temporally separated from post-usage construct such as disconfirmation and satisfaction, which collectively shape technology use continuance behavior [41]. Besides, we propose, as other authors [49] and [32] have suggested, that the contextual factors can moderate the relations between the ICT use continuance and prior beliefs (e.g., expectations, perceived usefulness and satisfaction). The moderator factor adopted in this study is socio-economic status.

Below we present the theoretical rationale for the causal relationships of the research model presented in figure 1.
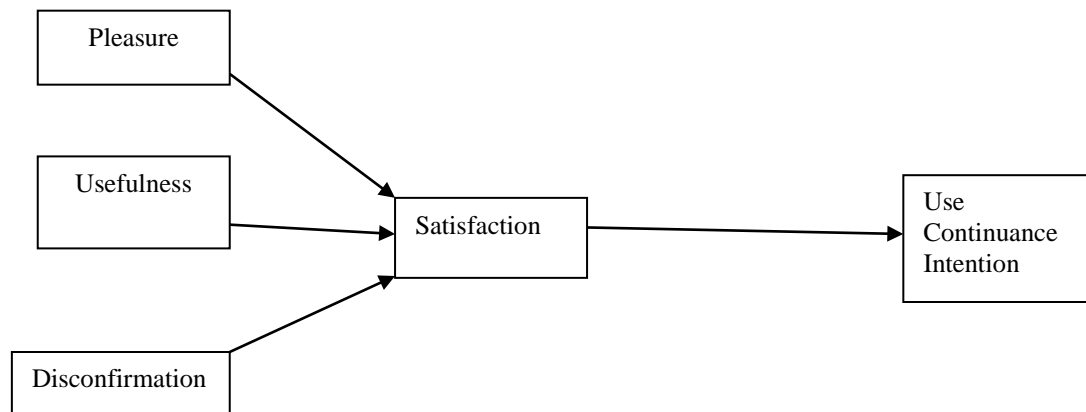
technology. At a general level, a person is satisfied with information technology use when it supplies things of value. Values are those things that people consciously or subconsciously want to seek. There are a number of studies which have indicated what people expect or want to attain by using an information technology. When people use an information technology and gain a benefit from its usage, they are more satisfied and develop intention to use it more. According to [6] and [37] user satisfaction is the most immediate motivator that determines an individual's behavioral intention to continued use.

Figure 1: Research model

2.1.   Behavioral intention

Behavioral Intention is a measure of the strength of one's intention to perform a specified behavior [2]. According to the Theory of Reasoned Action (TRA), behavior or action of individuals is determined by intention (behavioral intention: BI). Previous studies have established that "intention" is a good proxy variable for future "use" [37]; [48].

2.2   Satisfaction

Satisfaction can be defined as a pleasurable emotional state resulting from the use of information

User satisfaction is posited as a linear function proportional to disconfirmation. Disconfirmation is defined as the discrepancy between a user's pre-adoption expectations and perceived performance ([12]; [43], [37]. Disconfirmation is positive when the perceived performance is higher than pre-adoption expectations and the user is satisfied, or is negative when perceived performance falls short of expectations and the user is dissatisfied. The socio-economically people who have consistent interaction with Internet will be more likely to validate their positive expectations about using Internet than their opponent groups who have less occasion to use it.

[22], showed the socio-economically disadvantaged with lower income tend to use ICT for entertainment

purposes, while the socio-economically advantaged to use ICT for instrumental reason. In other words, the pleasure or joy of using an ICT seems to be the most important driver for socio-economically disadvantaged people to be satisfied and continue to use and ICT, whereas ICT usefulness is more important for socio-economically advantaged people [22].

Besides, [23] and [13] identify two main sources of motivation for people to adopt a technological innovation. These two sources of motivation are intrinsic motivation (pleasure or joy), and extrinsic motivation (usefulness). [13] support that the IT usefulness is extrinsic motivation, whereas perceived pleasure or joys of IT use is related to intrinsic motivation. From this perspective, a person will adopt an information technology because of the pleasure (intrinsic motivation) that it offers or utility gained from its usage.

Based on the above, we have said, we state theses hypothesis:

H1: Socio-economics status will moderate the positive influence of satisfaction on continued use intention such that the influence is stronger for the socioeconomically advantaged group than for the socioeconomically disadvantaged group

H2a: Socio-economic status will moderate the positive influence of usefulness on satisfaction such that the influence is stronger for the socioeconomically advantaged group than for the socioeconomically disadvantaged group

H2b: Socio-economic status will moderate the positive influence of pleasure on satisfaction such that the influence is stronger for the socioeconomically disadvantaged group than for the socioeconomically advantaged group

H2c: Socio-economic status will moderate the positive influence of disconfirmation on satisfaction such that the influence is stronger for the socioeconomically advantaged group than for the socioeconomically disadvantaged group

3.   Methodology

In this section, we define the method and instruments to reach our research objectives. More specifically, we present the questionnaire development processes, data collection strategy and analysis strategy.

3.1.   Questionnaire Development, Sampling and Data Analysis method

Most of the questionnaire items used in this study were borrowed from [31]'s questionnaire which has been already translated and pretested in a Francophone environment. The remaining constructs, were borrowed directly from past expectations-confirmation studies [5] and [6] and then subjected to back-translation procedures whereby the questionnaire items were translated from English to French. Following [31], we employed the random stratified sampling approach to make the study's sample representative of the population. The partial least squares (PLS) statistical analysis method as supported by the Smart PLS software [44] running on a personal computer was used to assess the study's hypotheses.

3.2.   Descriptive Statistics

Administration of the survey produced responses from a total of 1000 printed questionnaires. Of the received 600 responses, 89 were dropped from the sample for various reasons, among them incomplete response and choice of more 1 indictor for the same items. This represents a response rate of 60%. The descriptive statistics for the study's socio-demographic variables – age, gender, experience, income and level of education. Socio-demographic variables examined in this study are: gender, age, experience of using internet, income and education level. Sixty-three point four percent (63.4%) of respondents are males compared to 35% of females. Respondents are relatively young as almost 62% of them are less than 40 years old. Interestingly, respondents seem to be familiarized with Internet usage as more than 52.4% of these respondents have been using internet for between three and more than 6 years. Finally, almost 73 % of Internet users are well educated (above secondary school). They access Internet mainly at Cybercafé and 50% among them are making less than 100 000 CFA a month.

3.2. Testing for Validity

The validity of variables measurement was assessed through the reliability, convergent validity and discriminant validity. The reliability, the convergent and discriminant validities in this study were evaluated following the rules suggested by [40], [20], [53], [15].

3.2.1. Reliability of Measurements

In PLS, the psychometric properties of the scales used to measure the hypothesized model's reliability and the validity of its constructs are measured and articulated by the measurement model. Measures of reliability include the composite reliability each construct's indicators. The results for the composite reliability of each individual construct are presented in Table 1.

The value of composite reliability for each latent variable was above the threshold value of 0.7 recommended for empirical research [40]. We can

therefore claim that the internal consistency of the measurements in our study is satisfactory.

Table 1: Reliability and average variance extracted (AVE)

Constructs	Socioeconomically disadvantaged (SED)		Socioeconomically advantaged (SEA)	
	AVE	Composite Reliability	AVE	Composite Reliability
Disconfirmation (3)	0.59	0.80	0.59	0.80
Plaisir (3)	0.76	0.90	0.75	0.90
Satisfaction (3)	0.57	0.79	0.74	0.89
Intention (3)	0.72	0.88	0.67	0.89
Usefulness (4)	0.66	0.85	0.71	0.88

*. The number in parentheses indicates the items in the scale

3.2.2. Convergent Validity

The tests for convergent validity are that each construct's Average Variance Extracted (AVE) needs to be equal or greater than 0.5 [14]; Wixom & Watson, 2001) – table 2 provides these results; and, that each item's loading onto its respective construct should be equal to or greater than 0.5 [53]. According to the results which appear in the table 1, each construct yielded an AVE greater than the specified indicator above. Therefore, we can conclude the convergent validity of the survey instrument used in this study.

3.2.3. Discriminant Validity

The objective of this test is to assess the independence of the variables. The average variance extracted (AVE) for each construct was also assessed for purposes of in determining the model's discriminant validity. A model's discriminant validity is satisfactory if the square root of the AVE of each construct in the model is greater than the variance shared between the construct and other constructs in the model [20]. As is evident in Tables 2, the square root of the AVE of each construct is greater that the constructs' correlations. Therefore, all constructs have satisfactory discriminant validity.

Table 2 Assessment of Discriminant Validity

	Disconfirmation	Plaisir	Satisfaction	Intention	Usefulness
Disconfirmation	**0.67**				
Plaisir	0.551253	**0.59**			
Satisfaction	0.645642	0.510425	**0.76**		
Intention	0.541796	0.457922	0.603752	**0.51**	
Usefulness	0.643459	0.487431	0.594816	0.534050	**0.72**

3.3.   Research model assessment or tests of Hypotheses

PLS algorithm was performed to evaluate item weight and, bootstrapping was performed to evaluate T-statistics [44]. A Two-tailed T test is considered with 1.645, 1.96, and 2.576 critical values of T at significant level (p-value) 0.1, 0.05, and 0.01 respectively [52], [8], [42[44].

Table 4: Path analysis for all respondents

Paths	Path Coefficients	Sample Mean	Standard Deviation	Standard Error	T Statistics
Disconfirmation -> Satisfaction	**0.379335**	**0.383598**	**0.069938**	**0.069938**	**5.423894***
Pleasure -> Satisfaction	0.170983	0.181282	0.062019	0.062019	2.756938**
Satisfaction -> Intention	0.603752	0.605402	0.043697	0.043697	13.816916***
Usefulness -> Satisfaction	0.267387	0.257981	0.077719	0.077719	3.440438***

Path coefficient is significant at: ***p < 0.01, **p < 0.05; *p< 0.1

Table 5: Path analysis for socio-economically advantaged group

Paths	Path Coefficients	Sample Mean	Standard Deviation	T Statistics	P-Value
Disconfirmation -> Satisfaction	**0.418**	**0.416**	**0.075**	**5.561**	**0.000***
Pleasure -> Satisfaction	0.303	0.306	0.074	4.096	0.000***
Satisfaction -> Intention	0.700	0.701	0.040	17.596	0.000***
Usefulness -> Satisfaction	0.153	0.153	0.081	1.885	0.059*

Path coefficient is significant at: ***p < 0.01, **p < 0.05; *p< 0.1

Table 6: Path analysis for socio-economically disadvantaged group

Paths	Path coefficients	Sample Mean	Standard Deviation	T Statistics	P-Value
Disconfirmation -> Satisfaction	**0.392**	**0.394**	**0.063**	**6.202**	**0.000***
Pleasure -> Satisfaction	0.182	0.185	0.058	3.152	0.002***
Satisfaction -> Intention	0.574	0.576	0.047	12.199	0.000***
Usefulness -> Satisfaction	0.188	0.189	0.070	2.689	0.007***

Path coefficient is significant at: ***p < 0.01, **p < 0.05; *p< 0.1

Table 4 reveals that all the relations were supported for all the groups. While we requested Internet users' respondents to participate in the survey, the collected data enabled us to evaluate the relative influence of Satisfaction on Intention to continue to use the Internet. As can be seen in tables 4, 5 and 6, the primary outcome continued intention to use is explained by its main drivers. The Satisfaction is influenced by Usefulness, Disconfirmation and the perceived pleasure. It has been established extensively in the technology acceptance literature that users' Satisfaction plays a great role in explaining the intention to continue to use of a technology. Our finding is confirming that assumption.

3.3.1. Multi-Group and paths analysis for differences across groups

In order to determine the cross group differential influence, we have divided the sample into two groups on base of income. The bootstrapping method was applied to test our proposed model by using smart PLS, a structural equation model assessing software. Table 7 shows the detailed model test results predicting internet use continuance through the mediation of satisfaction. The four columns of results show the comparisons of results from high income (socioeconomically advantaged) and low income (socioeconomically disadvantaged) groups as proposed in this work. To test our hypotheses associated with differential reaction, we compared the coefficients of individual paths between the structural models of high income and low income groups. According to [22], this analysis is similar to a t-test of the moderation effect of social status on the path strength across groups. We referred to [46] to apply a PLS multi groups tests to assess statistical differences in path coefficients for each pair of paths as in the table below.

Table 7: Research hypothesis test

Hypothesis	Model Causal Paths	Path Coefficient for Socio-Economically Advantaged User-Group	Path Coefficient for Socio-Economically Disadvantaged User-Group	Difference in Path Coefficients	Standard Error	T-statistic for Difference in Path Coefficients	Hypothesis Validation
H1	Satisfaction -> Intention	0.70	0.39	0.126	0.003874	32.61***	Fully supported
H2a	Usefulness -> Satisfaction	0.15	0.19	0.035	0.006919	-5.09***	Partially supported (because of directionality)
H2b	Pleasure -> Satisfaction	0.30	0.18	0.120	0.006130	19.70***	Partially supported (because of directionality)
H2c	Disconfirmation -> Satisfaction	0.42	0.39	0.02	0.006371	4.13***	Fully supported

Path coefficient is significant at: ***$p < 0.01$, **$p < 0.05$; *$p < 0.1$; Ns non significant
Partially supported indicate that the positive influence of the drivers on the dependent variables hold but the differences between groups are not realized from performing the T-test

4. Discussion

This study seeks to provide a theoretical framework to investigate the antecedents of Internet use continuance in a developing African country such as the Ivory Coast. In particular, the main objective is to identify the factors which distinguish the socio-economically disadvantaged from advantaged group and prevent them from taking advantage of digital opportunity. The impact of the factors identified in the research model on user's continued use intention is explained below.

4.1. Intention to continue to use Internet

After consolidating and examining the results in both socio-economic groups, it seems that the relations between the predictor variables Satisfaction and our dependent variables (Intention to continue to use) are statistically significant according to the results in the table 4. These are consistent with the previous findings.

The positive influence of satisfaction is supported by the data for the both socio-economic groups according to the results computed in the table 4. In addition, the moderating effect on the link from satisfaction to use continuance intention was supported in the table 7 as theorized. Both groups do continue Internet use based directly on an assessment of utilitarian and hedonic value gained from the usage but,

the advantaged groups are more sensitive to satisfaction to continue to use the Internet than the opponent group. From the descriptive statistics of the study, the Internet is primarily used for information search, sending an email and collaboration with colleagues. We may think reasonably that those usages supply values which are more important to advantaged groups than disadvantaged persons as theorized.

4.2. Influence of the antecedents of Satisfaction

We theorized that the perceived usefulness has a positive influence on Internet users' satisfaction and that influence is stronger for the socio-economically advantaged group than the socio-economically disadvantaged people. Further, the study finds, contrary to what was hypothesized, that when it comes to the impact of usefulness on satisfaction (hypothesis H2a), the disadvantaged group of users report a statistically stronger effect than the advantaged users. It appears that internet use, even among the socio-economically advantaged population of users in Ivory Coast had not advanced to the higher-order usages where the internet becomes an instrument for productivity and productivity gains. The descriptive results showed that, across the entire study's sample - including both the socio-economically advantaged and disadvantaged groups- the internet was mainly used for information search, chatting, and interpersonal communications. This finding is consistent with the finding in [14] who reported that, in Sub-Saharan Africa, the Internet is used mostly for sending email, social networking and video sharing. Therefore, the socio-economic advantaged people may not find them as being radically instrumental for productivity gains – at least when use of the internet for these activities is contrasted to the conventional ways in which this group of users has accessed information-capital and business intelligence.

Previous research has most often supported the conjecture that Perceived Usefulness is a major determinant of the Users' satisfaction with a new ICT across technologies and cultures. The finding in this study that, for certain user-groups perceived usefulness may not be as strong a precursor for satisfaction with a new technology, indicate that nature of use may contribute to disparities in digital-society participation that consequently contribute to a digital inequality even within a society where all users have somewhat comparable access to the internet.

We did find significant relationship between the perceived pleasure and the satisfaction for both

group. This is consistent with some previous studies which support that the socio-economically disadvantaged people use information technology for its playfulness or for fun. However, the group differential effect between both group is in favor of the advantaged groups contrary to what was theorized. This is inconsistent with our assumption (hypothesis H2b) but it is similar to some previous studies as [22] which support that the impact of ICT playfulness on socio-economically disadvantaged people's continued use intention is time sensitive. The playfulness is salient in the early stage of ICT adoption by socio-economically disadvantaged people but it is not significant for use continuance. When an individual first begins to use a new information and communication technology (ICT) medium, playfulness often decreases because its use requires new skills and new manners of interaction. Socioeconomically advantaged people have better information literacy and digital skills than their counterpart group.

The study has established that a positive relationship exists between disconfirmation and users' satisfaction. As theorized, the study has been able to detect a significant differential effect between our two targeted groups (hypothesis H2c). The results indicated that the advantaged groups are more satisfied after experiencing internet persistent and consistent use. We can conclude that they are in good position to take advantage of the opportunities offered by internet and fulfill their initial expectations through their perceived usefulness and enjoyment (pleasure) than the disadvantaged groups.

Thus this study demonstrates the viability of employing a use-continuance theoretical model in examining the problem of the digital inequality, and identifies some antecedent factors that distinguish how continued-use behavior (as assessed by use-intention) may prevent or inhibit one group of users from taking advantage of digital opportunities to the same extent as some other group of users despite both groups having comparable physical-access capabilities to the internet. Therefore, concerning the digital inequality, this study indicates that access *per-se* may not be a sufficient antidote to the problem of the digital inequality. We recognize that the model may not be parsimonious or comprehensive. However, it affords a starting point in examining digital divide challenges in a post access-restrictions internet world.

5. Study relevance

In this era of knowledge economy where no nation can avoid using ICTs at the risk of becoming

irreversibly marginalized, the results of the study could help in ensuring greater success in the use of ICTs in developing countries with a similar cultural environment to that of Ivory Coast. Indeed, the results could assist governments and international organizations in their search for a solution to build an information-based society in developing countries.

This study will help the key stakeholders in adoption and use of internet based technology to understand the Psychological factors that influence continued use intention, which is likely to play a key role in defining the long term success of internet based communication use. Consequently, knowing the psychological factors behind the adoption of the Internet based technology would represent a tremendous competitive advantage for businesses. It is imperative that businesses consider virtual communities as a new market place. Gaining such an understanding is important because Internet based communication tools provide a solid base for businesses and governments to expand the potential market for their services, to improve the attractiveness of communities for business visitors and tourists, to give local entrepreneurs a chance to participate in building a professional network, and to lowering barriers to entry into the market.

6. Study limitation

As is typical, this research also presents limitations. It is possible that the data collected on the Internet are not easily generalizable to other ICTs, and the model adopted in this study should be tested on other technologies to assess the external validity of the study. Another limitation of the study is related to the fact that it is cross-sectional, and thus does not reflect the evolution of the variables studied over time. In this sense, it would be advisable for future research to conduct a longitudinal study to study the evolution of beliefs, attitudes over the time (before, during and after the adoption of a technology).

7. Acknowledgments

8. References

[1.] Agrifoglio, R., S. Black; M. Concetta; M. Ferrara, 2012. Extrinsic versus intrinsic motivation in continued twitter usage, *Journal of Computer Information Systems, Vol. 53, no.1, pp. 33-41*

[2.] Ajzen, I. 1991. "The theory of planned behavior". *Organizational behavior and human decision processes*, vol. 50, pp.179-211.**.**

[3.] Benbasat, and H. Barki (2007). "Quo vadis, TAM ?" *Journal for the Association of* Information Systems, vol. 8, no. 4, pp. 211-218

[4.] Bolar, K-P. 2009. "Motives Behind the Use of Social Networking Sites: An Empirical Study". *The Journal of Management Research*, vol. 8, no. 1, pp.75-84.

[5.] Bhattacherjee, A. 2001. "Understanding Information Systems Continuance: An Expectation-Confirmation Model", *MIS quarterly*, vol. 25, no.3, pp. 351-370.

[6.] Bhattacherjee, A. and Premkumar, G. 2004. Understanding Changes in Belief and Attitude Toward IT Usage: A theoretical model and Longitudinal Test. *MIS Quarterly*, vol. 28, no. 2, pp. 229-254.

[7.] Brancheau, J. and Borton, R. 1999. Information Technology Adoption and Implementation: A Longitudinal Multi-method Approach. University of Colorado Press, Boulder

[8.] Chin, W.W. and Todd, P.A. 1995. "On the Use, Usefulness, and Ease of Use of Structural Equation Modeling in MIS Research: A note of Caution", MIS Quarterly, Vol. 19, no. 2, pp. 237-246.

[9.] Chin, W. W., B. L. Marcolin, and P. R. Newsted. 2003 "A Partial Least Squares Latent Variable Modeling Approach for Measuring Interaction Effects: Results from a Monte Carlo Simulation Study and an Electronic-Mail Emotion / Adoption Study" *Information Systems Research* vol.14, no. 2, pp. 189-217.

[10.] Churchill, G-A, Suprenant C. 1982. "An investigation into the determinants of consumer satisfaction", *Journal of Marketing Research*, vol.19, pp. 491–504.

[11.] Compeau, D. and C. Higgins. 1995. Computer self-efficacy: Development of measure and initial test . *MIS Quarterly*, juin, vol. no. pp. 189-210.

[12.] Davis, F. D. 1989. "Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, vol.13, no.3. pp.318-343.

[13.] Davis, F. D., R. Bagozzi and P. R. Warshaw. 1992. "Extrinsic and intrinsic motivation to use computers in the workplace". *Journal of Applied Social Psychology*, vol. 22, pp.1111-1132.

[14.] Deen-Swarray, 2016. "Toward Digital Inclusion: Understanding the Literacy Effect on Adoption and Use of Mobile Phones and the Internet in Africa", *Information Technologies & International Development*, vol.12, no. 2, pp29-42.

[15.] DeVellis, R. F. 1991. *Scale development: Theory and applications*. Newbury Park, CA:

[16.]Dijk, J. V. and K. Hacker. 2003. "The Digital Divide as a Complex and Dynamic Phenomenon". *The Information Society,* vol. 19, no. 3, pp.15-326.

[17.]DiMaggio, P., Hargitai, E., Cleste, C. and Shafer, S. 2004. "From Unequal Access to Differentiated Use: A Litterature Review and Agenda for Research on Digital Inequality", *in Social Inequality*, K. Neckerman (ed.), Russell Sage Foundation, New York**.**

[18.]DiMaggio, P., Hargittai, E., Neuman, W. R., and Robinson, J. P. 2001. "Social Implication of the Internet", *Annual Review of Sociology*, vol. 27, no. 1, pp. 307-336.

[19.]Fishbein, M. and I. Ajzen, 1975. "Attitudes Toward Objects as Predictors of Single and Multiple Behavorial Criteria". *Psychological Review*, vol. 81, no. 1, pp.59-74.

[20.]Fornell, C. and D. Larcker (1981a) "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error" *Journal of Marketing Research* vol. 18, no.1, pp. 39-50.

[21.]Hong, W; James Y.L.; C. C. Lewis; D. Gurpreet. 2011. User Acceptance of Agile Information Systems: A Model and Empirical Test. *Journal of Management Information Systems.* Vol. 28, no. 1, pp. 235-272.

[22.]Hsieh, J.J., Rai, A., and Keil, M. 2008. Understanding Digital Inequality: Comparing Continued Use Behavioral Models of the Socio-Economically Advantaged and Disadvantaged. *MIS Quarterly, vol.* 32, no. 1, pp. 97–126.

[23.]Hsieh, J.J., Rai, A., and Keil, M. 2011. Addressing Digital Inequality for the Socioeconomically Disadvantaged Through Government Initiatives: Forms of Capital That Affect ICT Utilization. *Information Systems Research*. vol. 22, no. 2, pp.233-253.

[24.]Igbaria, M. 1994. "An examination of the factors contributing to microcomputer technology acceptance". *Accounting, management and information technology*, vol. 4, no.4, pp. 205-224.

[25.]Internetlivestats. 2014. Internet Usage Statistics for Africa. Retrieval November 20th, 2015, from http://www.internetlivestats.com/internet-users/#byregion

[26.]Internetlivestats. 2017. Internet users in the word by geographic regions 2017. Retrieved on July 18th, 2017, from http://www.internetworldstats.com/stats.htm

[27.]James, J. 2011. **"**Are Changes in the Digital Divide Consistent with Global Equality or Inequality?", *The Information Society, vol.* 27: pp.121–128,

[28.]Jarvis, C. B., S. B.Mackenzie, and P. M. Podsakoff. 2003. "A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research," *Journal of Consumer Research, vol.* 30, no. 2, pp. 199-218.

[29.]Jasperson, J. S., Carter, P. E., and Zmud, R. W. 2005. "A Comprehensive Conceptualization of Post-Adoptive Behaviors Associated with Information Technology Enabled Work Systems," *MIS Quarterly* (29:3), pp. 525-557.

[30.]Jung, J. Y., Qiu, J. L. and Kim, Y. -C. 2001. "Internet Connectedness and Inequality: Beyond the Divide"." *Communication Research*, vol. 28, no.4, pp. 507-525.

[31.]Kaba, B., K. N'Da, P. Meso and V. Mbarika. 2009. "Micro factors influencing the attitudes toward and the use of a mobile technology: A model of cellular phones use in Guinea", *IEEE Transactions on Professional Communication*, Vol. 52, no. 3, p. 272-290.

[32.]Karahanna. E., J.R. Evaristo and M. Srite. 2005. "Levels of culture and individual behavior: An integrative Perspective". *Journal of global information management*, vol. 13, no. 2, pp. 1-20.

[33.]Karahanna, E., Straub D. W., and Chervany, N. L 1999. "Information Technology Adoption Across Time: A Cross-sectional Comparison of Pre-adoption and Post adoption Beliefs" *MIS quarterly*, vol.23, no.2, pp.183-213.

[34.]Katz, J., and Aspend, P., 1997. "Motivation for and Barriers to Internet Usage: Results of a National Public Opinion Survey", *Internet Research: Electronic Networking Applications and Policy*, vol. 7, no. 3,pp. 170-188.

[35.]Kwankam, S. Y. and Ningo, N. N. 1997. "Information Technology in Africa: Proactive Approach and the Prospects of Leapfrogging Decades in the Development Process. *Paper presented at the 1997 INET Conference. Cameroon: University of Yaounde I.*

[36.]Lenhart , A. 2002. "Barriers to Internet Access: From the Non-User and New User Perspective". Presentation at *Association of Internet Researchers Conference* 3.0, Maastricht, Netherlands, pp 1-27.

[37.]Liao, C., P. Palvia, J.-L. Chen. 2009. "Information technology adoption behavior life cycle: Toward a Technology Continuance Theory (TCT)", *International Journal of Information Management*, vol. 29, pp.309-320.

[38.]Limayem, M., S. G., Hirt, and C. M. K Cheung. 2007. "How HabitLimits the Predictive Power of Intention: The Case of Information Systems Continuance," *MIS Quarterly, vol.*31, no. 4, pp. 705-737

[39.]Lytras, M.D.2005 "An interview with Richard Watson," Official Quarterly Bulletin of AIS Special Interest Group on Semantic Web and Information Systems, (2:1), pp.1-5

[40.]   Nunnally, J.C. (1967) *Psychometric Theory*. McGraw-Hill, New York, USA.

[41.]Matzat, U. et B. Sadowski, 2012. Does the "Do-It-Yourself Approach" Reduce Digital Inequality? Evidence of Self-Learning of Digital Skills. *The information Society*, vol. 28, no. 12, pp.1-12.

[42.]Nunnally, G. (1978). *Psychometric theory*. New York: McGraw-Hill.

[43.]Oliver, R-L. 1980. "A cognitive model for the antecedents and consequences of satisfaction",

Journal of Marketing Research, vol. 17, pp. 460–469.

[44.]   Ringle, C-M, W., Sven and W. Alexander. 2015. SmartPLS 2.0 beta. Retrieved on December, 2016 from http://www.smartpls.de, SmartPLS, Hamburg, Germany.

[45.] Straub, D., Boudreau, M-C. and Gefen, D. 2004. "Validation Guidelines for IS Positivist Research," *Communications of the AIS*, vol. 13, pp. 380-427.

[46.] Sarstedt M., J. Henseler, C- M. Ringle. 2011. Multigroup Analysis in Partial Least Squares (PLS) Path Modeling: Alternative Methods and Empirical Results

[47.]*Advances in International Marketing*, vol. 22, pp. 195 - 218

[48.] Venkatesh, V. J. Y. L. Thong and X. X. 2012. "Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology", *MIS Quarterly*, vol. 36, no. 3, pp. *157-178*.

[49.] Venkatesh, V. and Morris, M.G., Davis, G.B., Davis, F. 2003. "User Acceptance of Information Technology: Toward a Unified View", *MIS Quarterly*, vol. 27, no. 3, pp. 425-478.

[50.] Venkatesh, V. and Brown, S. A. 2001. "A Longitudinal Investigation of Personal Computers in Homes: Adoption Determinants and Emerging Challenges", *MIS quarterly* vol.25, no.1, pp.71-99.

[51.] Viard, V. Brian; Economides, Nicholas. 2015. "The effect of content on global internet adoption and the global 'digital divide**".** *Management Science*. vol. 61, no. 3, pp. 665-686

[52.] Wagner, S-F. .1992. *Introduction to statistics,* New York : HarperPerennial.

[53.] Wixom, B.H. and Watson, H.J. 2001. An empirical investigation of the factors affecting data warehousing success, *MIS Quarterly*, vol. 25, no.1, pp. 17-41.

[54.] Yin, R. K. 2002. Case Study Research, Design and Methods, 3rd ed. Newbury Park, Sage Publications.

[55.] Yu, T-K; M-L. Lin and Y-K. Liao. 2017. Understanding factors influencing information communication technology adoption behavior: The moderators of information literacy and digital skills. *Computers in Human Behavior*, vol.71, pp.196-208