DOI: 10.21917/ijms.2018.0097

ADOPTION OF MOBILE TELEPHONES IN THE NATIONAL AGRICULTURAL ADVISORY SERVICES POVERTY REDUCTION INITIATIVES IN UGANDA

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Abstract

The utilization of mobile phones has penetrated the life style of most individuals in Uganda. Individuals interact and share information freely, solve various problems related to distance, time, monetary expenditures, among other problems. Based on UTAUT theory this study aimed at establishing the relationship between performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention to use and adoption of mobile phones. Self-administered questionnaire was used to collect data from the respondents in the five divisions of Kampala district in Uganda and using snowball sampling method, a sample of 293 National Agricultural Advisory Services (NAADS) beneficiaries was considered. The relationships and tests between the variables were done using Structural Equation Modelling (SEM). The findings of this study showed a significant positive relationship between Performance Expectancy and Behavioural intentions, facilitating conditions and Behavioural intentions to adopt mobile phones. Behavioural intentions was found to be a significant predictor of the adoption of mobile phones. The relationships between effort expectancy, social influence and behavioural intention to adopt mobile phones, were not significant. There should be enhancement in the performance of mobile phones services by providing strong network signals and providing useful mobile applications. Need for resources to use a mobile phone is its compatibility with other ICT technologies in place for better information access. Mobile platforms should be utilized for information access, because the beneficiaries intend to continue using mobile phones in the future to access and share information, recommending other beneficiaries of NAADS to use mobile phones.

Keywords:

UTAUT, NAADS, Adoption, SEM, Uganda

1. INTRODUCTION

The fastest development and reduction in poverty rate is continually recorded in Eastern Asia, especially in China and India which have contributed to the largest global poverty reduction initiative [1]. Except Sub-Saharan Africa, most of the developing regions like Western Asia, Central Asia and parts of Eastern Europe are expected to achieve the Millennium Development Goals (MDGs) target by the end of 2015 [2]. According to a report by [10], millions of people in Sub-Saharan Africa and South Asia are stuck in poverty because of the poor health, lack of information and the basic education that deprive them of productive employment, yet the population growth exceeds the rate of poverty reduction. These regions are still characterized by corruption, conflicts, poor governance, waste of public resources, and discouragement of private investment [10]. In Uganda, the number of poor people below the national poverty line increases every day due to the high population growth and limited access to financial information services, necessary inputs and technology that can assist them to increase on their production. The gains of poverty reduction initiatives in Uganda have been unevenly spread across the country since poverty reduction strategies are limited to rural areas, with urban poverty increasing from 9.1% in 2009/10 to 10.5% in 2012/13, and also regional disparities remains with an increase in poverty. NAADS poverty reduction initiatives have constantly experienced budget overrun, time overrun, unrealized customer requirements, and unmet management objectives, which is partly attributed to the inappropriate use of modern technologies for information access regarding the program [3]. Therefore, the intention behind this study was to examine the factors that would lead to successful adoption of mobile telephones in the National Agricultural Advisory Services (NAADS) poverty initiative. Mobile telephones can be used to access timely information regarding good cultivation practices, improved crop varieties, pest and disease management, prices and market preferences, among others [4]. Eradicating extreme poverty and hunger between 1900 and 2015 was the number one millennium Development Goal strategy, with the aim of halving the percentage of people whose income is below $1.25 a day. Worldwide, several countries have notably progressed in reducing extreme poverty, and the number of people living in absolute poverty dropped from 1.9 billion in 1990 to 1.2 in 2010 thus meeting the MDG target of poverty eradication five years ahead of 2015 [2]. Regions like Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa have made a tremendous success in reducing poverty and meeting the millennium development targets [2]. Despite the general poverty reduction progress all over the world, the Sub-Saharan Africa and South Asia still remains the world's poorest region that have lagged behind, and may not meet the Millennium Development Goals target of poverty reduction [2]. According to the Global Monitoring Report, [1] extreme poverty of about 47 percent is mainly centered in Bangladesh, China, the Democratic Republic of Cong, India, and Nigeria. Other countries like Indonesia, Madagascar, Pakistan, Ethiopia and Tanzania are poor [1]. In Uganda, a considerable progress is being seen in realizing the Millennium Development Goals especially reducing extreme poverty, although a lot of input is still needed to achieve all the goals [5]. The Estimates shows that absolute poverty has continued to reduce from 24.5% in 2009/2010 to 22.2% in 2012/2013, following two decades of a continuous progress in reducing absolute poverty in Uganda. However, the poverty reduction gains have not been equally spread all over the country since these strategies are limited to the rural areas hence leading to an increase in the urban poverty from 9.1% in 2009/2010 to 10.5% in 2012/13 [6]. National Agricultural Advisory Services (NAADS) is a government programme that was established in 2001 by the Act of Parliament to enhance farmers to access and utilize agricultural advisory services and improved technologies [7]. However, since the NAADS formation, the program has been

considered as unfocused, extended to fewer farmers and hence not cost effective [7]. According to [8], NAADS basically use traditional means of communication like Newspapers, radio, website and Television to reach out to the beneficiaries. However, other ICT tools like mobile phones are only used to contact few officers at the sub-counties, leaving out the beneficiaries [8]. The only attempt NAADS tried using mobile phones in its service delivery was a pilot study for introducing an Agricultural Technology and Agribusiness Advisory Services (ATAAS) Project, and an agro-based mobile phone application (e-extension) services for providing the latest information to beneficiaries [9] [10]. Nevertheless, the use of other ICT tools like mobile phones through text messages, calls and internet can increase the chances of useful information delivery in a sufficient and efficient manner to the intended persons [11].

1.1 STATEMENT OF THE PROBLEM

In Uganda, the gains of poverty reduction initiatives have been unevenly spread across the country since poverty reduction strategies are limited to rural areas, with urban poverty increasing from 9.1% in 2009/10 to 10.5% in 2012/13, and also regional disparities remains with an increase in poverty [1]. NAADS poverty reduction initiatives have constantly experienced budget overrun, time overrun, unrealized customer requirements, and unmet management objectives, which is partly attributed to the inappropriate use of modern technologies for information access regarding the program [3]. Therefore, the intention behind this study was to conduct a research that would enable to gather and analyse information that can guide the successful adoption and use of mobile telephones in the NAADs program. Mobile telephones can be used to access timely information regarding good cultivation practices, improved crop varieties, pest and disease management, prices and market preferences, among others, hence empowering the NAADS program in reducing poverty in Uganda [4].

1.2 GENERAL OBJECTIVE

The major objective of this research was to understand a more successful way in which mobile telephones can be adopted and used in the NAADS poverty reduction initiatives, by establishing the relationship between the independent variables of performance expectancy, effort expectancy, social influence, facilitating conditions and the dependent variables of behavioural intention to use and adopt of mobile phones.

1.2.1 Specific Objectives of the Study:

- To establish the relationship between performance expectancy and behavioral intention to adopt mobile phones for information access.
- To establish the relationship between effort expectancy and behavioral intention to adopt mobile phones.
- To examine the relationship between social influence and the behavioral intention to use mobile telephones for information access.
- To establish the relationship between facilitating conditions and the behavioral intention to adopt mobile telephones for information access.
- To examine the relationship between behavioral intention and the adoption of mobile telephones for information access.

1.3 RESEARCH QUESTIONS

To address the problem; the research was guided by the following specific questions.

1.3.1 Specific Research Questions:

- What is the relationship between performance expectancy and behavioral intention to adopt mobile phones for information access?
- What is the relationship between effort expectancy and the behavioral intention to use mobile phones?
- What is the relationship between social influence and the behavioral intention to use mobile phones for information access?
- What is the relationship between facilitating conditions and behavioral intention to adopt mobile phones for information access?
- What is the relationship between behavioral intention and the adoption of mobile phones for information access?

2. THEORETICAL AND LITERATURE REVIEW

2.1 THE UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

The UTAUT model was created by [12] as a synthesized model that presents a comprehensive picture of the technology acceptance and adoption Behavioral process than any other previous individual model had been able to do. The Eight previously used models were merged in an integrated model. The UTAUT model has four key constructs that include performance expectancy, effort expectancy, social influence, and facilitating conditions, which are direct determinants of usage intention and behavior. In this study, the UTAUT theory was adopted and its constructs (performance expectancy, facilitating conditions, Effort expectance, Social Influence were used to determine the mobile phone adoption in the NAADS program.

2.2 THE RELATIONSHIP BETWEEN PERFORMANCE EXPECTANCY AND BEHAVIOURAL INTENTEION TO USE MOBILE PHONES

Performance expectance relates to the degree to which an individual believes that using a given technology or system can help him/her attain a more job performance [13]. According to [12], Performance expectancy is the degree of expected benefits consumers assume when using a technology for performing given activities. Regarding to the use of mobile technologies in the NAADS poverty reduction initiative, Performance Expectance may be looked at in terms of how mobile phone users believe that using mobile technologies can help them to improve on their jobs, lives or means of accessing information [14]. According to [15], the constructs that seem to be similar to performance expectance in the various models and theories include the perceived

usefulness (Technology Acceptance Model), relative advantage (Diffusion of Innovation), job-fit (Model of PC Utilization), outcome expectancy (Social Cognitive Theory), and extrinsic motivation (The Motivational Model). According to [50], the more NAADS beneficiaries perceive the performance of mobile phones is useful in accessing information regarding the NAADS program, the more significant for one's behavioural intention to adopt and use mobile phone, and recommend others. [16] - [21], in their studies established significant positive relationship between performance expectancy and behavioural intention, further pointed out that users have more intention to use a new information technology if it is easy to operate. Therefore, research study had the following Hypothesis.

H_1: Performance Expectancy has significant positive influence on the Behavioural Intention to adopt mobile phones for information access.

2.3 THE RELATIONSHIP BETWEEN EFFORT EXPECTANCY AND BEHAVIOURAL INTENTION TO USE MOBILE PHONES

Effort expectancy relates to the degree of convenience perceived by the users when using a given technology [13]. According to [13], Effort Expectancy relates to the extent of convenience perceived while using a given technology. When individuals expect their job performance to be improved by the proposed technological system for poverty reduction, their Behavioral Intention to use ICT tools for development is hypothesized to be positive. In this study, effort expectancy is associated with the user's suitability to use a mobile device for information. While investigating the factors affecting the adoption of an interactive whiteboard among the Australian early childhood teachers, [22] found out that effort expectancy and performance expectance variables were strongly related. Therefore Effort Expectancy is viewed as the strong determinant variable when measuring behavioural intention to adopt a given technology. However, findings from other studies like [23], indicates that effort expectancy did not influence the behavioural intention of the respondents in adopting the 3G services. In another study by [24], effort expectancy was found to be an insignificant predictor of the users' intention to adopt mobile banking. Studies by [16] - [21], [25] and [12] established significant positive relationship between effort expectancy and behavioural intention and indicated that users have more intention to use a new information technology if people important to them think it is necessary for them to adopt the new technology. Thus this research study brought up the following hypothesis.

H_2: Effort Expectancy has a significant positive effect on the Behavioural Intention to adopt mobile phones for information access.

2.4 RELATIONSHIP BETWEEN SOCIAL INFLUENCE AND BEHAVIOURAL INTENTION TO USE MOBILE PHONES

According to [26] social influence is the perceived external pressure which individuals feel in the due course of being informed on how to use a new innovation, and the degree at which an individual perceive of how important others believe he/she should use a new technology. Normally, people change their perception and beliefs according to the group they belong to, especially being influenced by the majority members, where someone can learn, emulate and use a behaviour based on what he/she observes in a social grouping [27]. According to [12] social influence refers to the degree that an individual perceive of his/her colleagues are important to him/her and they can have an influence in using a new system or technology. Social influence plays a vital role in the adoption of mobile technologies where by individuals with their closest friends that already possess mobile gadgets are likely to adopt, meaning that people normally get connected in group [28]. In this study, social influence means that if the NAADS beneficiaries recommend the use of mobile phones for information access in the NAADS program to other beneficiaries, they are more likely to adopt mobile phones and recommend them to others as well. In their study about the two constructs (social influence and behavioural), [29], [30] and [22] found out that there was a minor relationship between the constructs, hence confirming the earlier findings of [31]. However, the findings of [24] reveals that social influence significantly influenced the behavioural intention to use 3G service technology among the Chinese. Several studies by [16], [32], [17] - [20] have established strong relationship between social influence and behavioural intention. Thus the following hypothesis was brought forward.

H_3: Social Influence significantly and positively influences the Behavioural Intention to adopt mobile phones for information access.

2.5 THE RELATIONSHIP BETWEEN FACILITATING CONDITIONS AND BEHAVIOURAL CONDITIONS TO ADOPT MOBILE PHONES

Facilitating condition refers to the extent to which an individual believe that the organisational and technical infrastructure required to use a new technology are in place [33]. According to [34], facilitating conditions is still one of the major hindrance to the adoption of mobile technologies especially the use of mobile money in Kenya. Facilitating conditions are so vital in the organisation because they help in the prioritization of their resources. Facilitating conditions are motivating factors to the consumer's ease of use of a given technology, whereby higher facilitating conditions normally increase the performance expectancy when using mobile services [35] Positive opinions regarding the use of any device or supporting infrastructure may reduce the consumer's worries about using a technological service, and the security related issues of mobile technologies are still a major concern to consumers regardless of their level of technological anxiety [36]. In this study therefore, facilitating conditons relates to the various conditions that can enable the NAADS beneficiaris to have access to the information regarding the NAADS program. In a study conducted by [37] concerning the adoption of an online stocking system amongst the Taiwanese investors, facilitating conditions were found to be very influential on the behavioural intention for personality traits on the internet experience. More so, a study done by [38] which aimed at understanding the perception of the United States University students on courseware management software, there was a direct causal relationship that exist between facilitating conditions and behavioural intention. However, in a

study conducted by [31] concerning a study on ICT integration in classroom of bachelor's degree students in one of the Canadian universities, facilitating conditions were found insignificant predictors of behavioural intention. This was confirmed by [22] study of e-learning which examined the adoption of an interactive white board amongst the students and teachers in the universities of Australia. Number of studies have indicated significant positive relationships between facilitating conditions and behavioural intention [16] - [20], [12]. Therefore, the following hypothesis was brought forward.

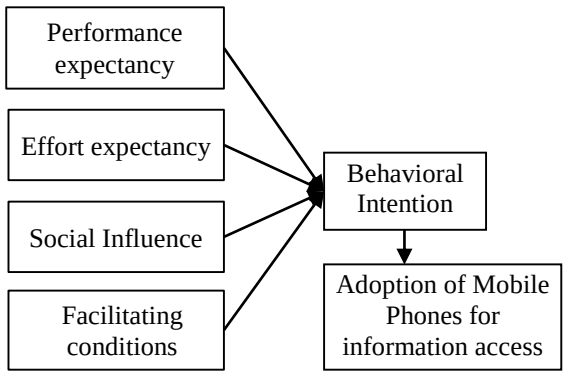
H_4: Facilitating conditions has a significant positive influence on the behavioural intention to adopt mobile phones for information access.

2.6 THE REALTIONSHIP BETWEEN BEHAVIROL INTENTION AND THE ADOPTION OF MOBILE PHONES FOR INFORMATION ACCESS

Behavioural intention is referred to as the measure of the likelihood that an individual adopts a given application or technology [39]. Behavioural intention can be influenced by the use's attitude towards the behaviour, subjective norm, and perceived behavioural control when using a given technology. In this study, behavioural intention relates to the NAADS beneficiaries' habits which directly have an effect regarding the use of mobile phones for information access [34]. The behavioural intention to use mobile phones for information access is said to be having a substantial impact on an individual's adoption and use of mobile phones. This is evidenced through various studies, including [41] who through their model found out that behavioural intention had a significant influence on mobile learning adoption. Also [38] proved that Behavioural intention had appositive influence on the student's perception when adopting E-learning methods. The following hypothesis was therefore put forward. Several studies such as [12], [32], [18], [19] among others found that Behavioural Intentions to Use significantly influences and has a direct impact on the adoption and usage of a system.

H_5: Behavioural intention has a significant positive influence on the adoption of mobile phones for information access.

2.6.1 Conceptual Framework:



Source: [12] UTAUT

Fig.1. A conceptual framework for adoption of mobile phones in the NAADS poverty reduction initiative

The conceptual framework in Fig.1 was developed after a thorough review of the [12] Unified Theory of Acceptance and Use of Technology framework that shows the dependent and independent variables in the adoption of any modern technology. These variables include the Performance expectancy, effort expectancy, facilitating conditions, social influence, and behavioural intention to use a technology that affects mobile phone adoption.

3. METHODOLOGY

3.1 RESEARCH DESIGN

A cross sectional research design and deductive research strategy were adopted with a quantitative research method to analyze snapshot data. Quantitative research normally explains the statistical analysis, by making a connection between what is exactly known and what can be learnt when research is made [41]. The collection and analysis of data while using the quantitative strategy need a thorough understanding and knowledge of relationship that exist within variables with either descriptive or inferential statistics [41]. Further [41] adds that quantitative research is advantageous because its rigorous approach when finding answers the research questions, though it involves spending some time in the field and doing data analysis.

3.2 DATA COLLECTION TECHNIQUES

Questionnaire was used as data collection tool. Conducting a literature review involves demonstrating the author's knowledge and understanding about a given field that is being studied, including the theories, vocabularies, variables and phenomena, and the methods [42]. In this study, we used the closed questionnaires. Self-administered questionnaires were used to collect data concerning the integration of Mobile phones in the NAADS poverty reduction initiatives. A five point Likert Scale was used, with Strongly Agree representing 1, Agree representing 2, Not Sure representing 3, Disagree representing 4, and Strongly Disagree representing 5.

3.3 SAMPLE POPULATION, SAMPLING METHOD, AND SAMPLE SIZE

The sample population included the household beneficiaries of the NAADS program. In this study, a snowball and purposive non-probability sampling were used, since it enables to capture only those respondents on NAADs program with mobile phones and who are knowledgeable in a given subject of study [54]. The sample size of 293 to collect the required data from the respondents was adequate, in accordance to [52] sample size guidelines.

3.4 MEASUREMENT OF VARIABLES

Both the independent and dependent variables (Performance Expectancy, Effort expectancy, Facilitating Conditions, Social Influence, Behavioural Intention and Mobile phone adoption) were measured in accordance to a combination of [12] [32] scales of the Unified Theory of Acceptance and Use of Technology, as seen in Table.1

Table.1. Measurement of Variables

Variable	Variable	Source
Performance expectancy	• I find mobile phone useful in my daily life. • Using mobile phones increases my chances of accessing important information. • I find using mobile phones to be time saving	[12] [32]
Effort Expectancy	• Learning how to use a mobile phone is easy for me. • My interaction with a mobile phone is clear and understandable. • It is easy for me to become skillful when using a mobile phone	[12] [32]
Social influence	• People who are important to me think that I should possess and use a mobile phone. • People who influence my behavior think that I should use a mobile communication device. • People whose opinions that I value prefer that I use a mobile phone.	[12] [32]
Facilitating Condition	• I have the resources/finances necessary to use a mobile phone • The Mobile phone I use is compatible with other ICT technologies in place. • The government encourages me to use a mobile phone in order to access information.	[12] [32]
Behavioural Intention	• I intend to continue using mobile phones in the future to access and share information. • I will recommend my colleagues to use mobile phones in order to access and share information. • I will offer help to my colleagues on how to use mobile phones for information access.	[12] [32]
Mobile Technology Adoption	• I find it easier to use a mobile phone for information access than using any other mean of communication. • Using a Mobile phone is a more flexible means of communication than any other. • Improving network coverage across the country by the operators is key to increasing mobile phone adoption and usage	[12] [32]

3.5 VALIDITY OF THE INSTRUMENT

The Data Collection Instrument was measured for validity. The study used the Content Validity Index (CVI) and the Cronbach Alpha to determine if the questions asked are valid and appropriate for the study, and whether the questionnaire measures what it was intended to measure. According to [43], the data collection instrument used must be effective and yield consistent results at all time, and do away with questions with inconsistent information. Two questionnaires were administered to two expert judges for purpose of validating the data collection instrument, with a five point Likert scale of (not relevant, somewhat relevant, quite relevant, relevant and very relevant). The results from two expert judges validation showed Content Validity Indexes of 0.8 and 0.7, which is sufficient according to [44], a range of 0.6 to 1 is sufficient for a content validity index.

3.6 RELIABILITY OF INSTRUMENT

Reliability of instruments is a way of evaluating the stability of the consistency and measurement of instruments [45]. Reliability of instruments is used for evaluating the stability of measures being administered at different times to similar individuals when using the same standards or instruments [45]. The reliability and validity of questionnaire was ensured through the use Cronbach's Alpha Coefficient. Cronbach's Alpha Coefficient was used because of its widely used method of estimating the average inter-relations of items and the number of items in a given scale. Thirty respondents were given questionnaire for purposes of checking for reliability of the instruments, and Cronbach's Alpha reliability test was done using SPSS software. The result from the reliability of instruments test showed that the coefficient of 0.7 and above was achieved. According to [46], any coefficient that is 0.7 and above is acceptable.

Table.2. Reliability Statistics

Variable tested	Cronbach's Alpha	No. of Items
Performance Expectancy	0.700	3
Effort Expectancy	0.880	3
Social Influence	0.860	3
Facilitating Conditions	0.700	3
Behavioural Intentions to Use	0.786	3
Mobile Phone Adoption	0.756	3

Source: Primary data

3.7 DATA ANALYSIS AND PRESENTATION

The collected data from the respondents was analyzed and presented for editing and coding in order to find out the errors and the inconsistence. A statistical package for social scientists (SSPS) was used to input and tabulate data. The demographic data was analyzed using descriptive statistics analysis, through the use of means, percentages and frequencies which was presented in tables. Factor analysis was used to establish the underlying dimensions between the variables [47]. With factor analysis, descriptive statistic was used for a detail description of the different variables. Diagnostic tests for normality, linearity,

multicollinearity and homogeneity were also performed to determine the distribution of variables. The testing of relationship between variables was determined by multiple regression analysis and tested with the use of Structural Equation Model for purposes of Confirmatory Factor Analysis, and to establish the Average Variance Extracted (AVE) for the measured variables. Structure Equation model was used because of its ability to reduce the measurement error and measure immediate overall tests of a model fit and the individual limitation estimate results [48].

4. FINDINGS

4.1 DEMOGRAPHIC CHARACTERISTICS

The demographic characteristics of this study included the gender, marital status, education level, age of respondents, and division as seen in Table.3.

According to Table.3, majority of the respondents were male (55%) and female (45%) from all the five divisions of Kampala. This implied that the study was gender sensitive as it included the male and female respondents. Most of the respondents to this study were mainly certificate holder (Uganda Certificate of Education, Uganda Advanced Certificate of Education, and any other), with a (46%). These were followed by the Bachelors holder who were (28%), Ordinary Diploma with (18%), Below Certificate (4%), PGD (2%), Masters (1%) and lastly PhD with (.4%) respondent. The summary of the information is given in Table.3. So this implied that the respondents were educated enough to read and understand the questions. The respondents to this study were mainly between the ages of 18-25 with (36%), followed by 26-30 with (28%). The other category was in the range of 31-35 with (18%), 36-40 with (11%), 41-45 with (5%) and lowest number of respondents was the one above 45 years with (3%). It is therefore evident that the respondents were majorly the youth, and most productive.

Table.3. Demographic Statistics about Respondents

		Frequency	Percent
Gender of the respondent	Male	132	55.2
	Female	107	44.8
	Total	239	100.0
Education level	Certificate	110	46.0
	Ordinary Diploma	44	18.4
	Bachelors	67	28.0
	PGD	4	1.7
	Masters	3	1.3
	PhD	1	.4
	Below Certificate	10	4.2
	Total	239	100.0
Age of the respondent	18-25 Years	85	35.6
	26-30 Years	66	27.6
	31-35 Years	44	18.4
	36- 40 Years	27	11.3
	41-45 Years	11	4.6
	Above 45	6	2.5
	Total	239	100.0

Source: Primary data

4.2 DIAGNOSTIC TESTS

Diagnostic tests for normality and linearity were performed as shown in the following sections.

4.2.1 Normality:

Normality tests were performed using Skewness and Kurtosis. Skewness statistics values lie between -1 and +1, while the Kurtosis statistics lie between -2 and +1 an indication that the data on all the study variables was approximately normally distributed as shown in table, which according to [49] it is an acceptable skewness and Kurtosis value for a normally distributed set of test. Shapiro statistics Sig values are all greater than 0.05, an indication of approximately normal distribution for all the study variables. Also plots, skewness and kurtosis showed an approximately normal distribution then the variables are taken to be fairly distributed.

Table.4. Tests of Normality

	Shapiro-Wilk, Sig>0.05	**Skewness**	**Kurtosis**
Performance Expectancy	.825	.284	-1.189
Effort Expectancy	.902	-.903	.974
Social Influence	.854	.178	-.113
Facilitating Conditions	.957	-.524	.257
Behavioural Intention	.920	-.578	.215
Mobile Phone Adoption	.918	-.542	-.113

Source: Primary data

4.2.2 Linearity:

There is a linear relationship between the independent and dependent variables F (26.576) Sig (.000). Behavioural Intention, Social Influence, Effort Expectancy, Performance Expectancy, Facilitating Conditions linearly predicted 36.3% of mobile phone adoption.

Table.5. Multiple linear regression of all study variables

	B	Beta	Sig.	VIF
(Constant)	.927		.020	
Performance Expectancy	.032	.022	.709	1.303
Effort Expectancy	.133	.148	.015	1.317
Social Influence	.100	.075	.188	1.183
Facilitating Conditions	.166	.191	.004	1.581
Behavioural Intention	.342	.345	.000	1.651

Source: Primary data

4.3 RELATIONSHIP BETWEEN STUDY VARIABLES

Using SPSS and Analysis of Moments of Structures (AMOS) Fig.2, significant positive relationships between performance expectancy (PEP), (path coefficient=.14, sig<0.05) and facilitating conditions (FCD), (path coefficient=.63, sig<0.01) with behavioral intention (BIT) existed and predicting 58% of behavioral intention. Behavioral intention significantly related to adoption (ADPT), (path coefficient=.62, sig<0.01), predicting 39% of adoption as shown in Fig.2.

4.3.1 Initial Structural Equation Model:

The Fig.2 presents a model with all the studied variables, and how they influence adoption of mobile phones. These include performance expectancy; effort expectancy; social influence; facilitating condition, behavioural intentions; and adoption of mobile phones. The Initial Structural Equation Model was performed for confirmatory tests, as shown.

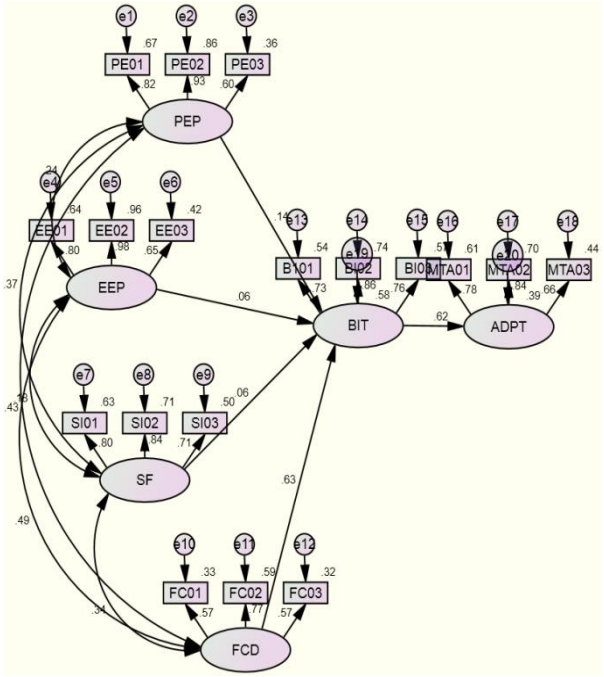


Fig.2. Initial Structural Equation Model (SEM) for unobserved variables (Note; PEP=Performance expectancy; EEP=Effort expectancy; SF=Social Influence; FCD=Facilitating conditions; BIT=Behavioural Intentions; ADPT=Adoption)

(Chi-square =351.651, Degrees of freedom = 126 and Probability level =.000).

4.3.2 Model Goodness of Fit Summary:

The goodness of fit of the model (GFI) was 88% and the adjusted goodness of fit index (AGFI) was 83% implying that model is fitting the data of the study variable very well. The Baseline Comparisons were NFI=0.855, RFI=0.822, IFI=0.908, TLI=0.885, CFI=0.797 and RMSEA=0.077.

4.3.3 Final Structural Equation Model (SEM):

The Fig.3 presents a model with four variables and how they influence adoption of mobile phones. These include performance expectancy; facilitating condition, behavioural intentions; and adoption of mobile phones.

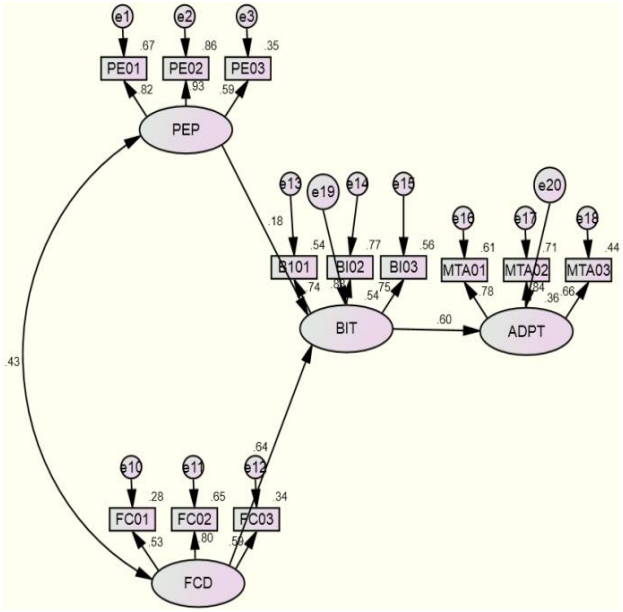


Fig.3. Final Structural Equation Model (SEM) for un observed Variables (Chi-square =161.803, Degrees of freedom = 50, Probability level =.080)

4.3.4 Model Goodness of Fit Summary:

The goodness of fit of the model (GFI) was 97% and the adjusted goodness of fit index (AGFI) was 95%. The Baseline Comparisons were NFI=0.914, RFI=0.934, IFI=0.910, TLI=0.909, CFI=0.908 and RMSEA=0.07. This implied that the model fitted the data well.

Significant positive relationship existed between performance expectancy and behavioural intention (path coefficient=.18, sig<0.05), significant positive relationship existed between facilitating conditions and behavioural intention (path coefficient=.64, sig<0.01). Performance expectancy and facilitating conditions predicted 54% of behavioural intention with facilitating conditions predicting more compared to performance expectancy. Behavioural intention (path coefficient=.60, sig<0.01) significantly and positively affected adoption of mobile phones. The R squared was 36% implying facilitating conditions, performance expectance and behavioural intention predicted 36% of adoption of mobile phones by NAADS beneficiaries in Uganda.

5. DISCUSSION OF FINDINGS

The study aimed at establishing the relationship between performance expectancy and behavioural intention to adopt mobile phones, effort expectancy and behavioural intention to adopt mobile phones, social influence and the behavioural intention to use mobile telephones, facilitating conditions and the behavioural intention to adopt mobile telephones, behavioural intention and the adoption of mobile telephones in the NAADS poverty eradication initiatives.

5.1 PERFORMANCE EXPECTANCY AND BEHAVIORAL INTENTION TO ADOPT MOBILE

The findings show a significant positive relationship between performance expectancy and behavioural intention to adopt mobile phones for information access in the NAADS poverty reduction initiative, implying that performance expectancy positively influence the behavioural intention to adapt mobile phones. The respondents indicated that if mobile phones can increase on their chances of accessing important, time saving, and generally useful in their daily life, that could increase their behavioural intention to adopt mobile phones. The findings of this study are in agreement with [50] findings, who indicated that the more a technology user/beneficiary perceive the performance of a mobile phone is useful when accessing information regarding a given program, the more it becomes significant for one's behavioural intention to adopt and use a mobile phone, and recommend others. Results are in line with various studies that established significant positive relationship between performance expectancy and behavioural intention [16]-[21] and also further pointed out that users have more intention to use a new information technology if it is easy to operate.

5.2 EFFORT EXPECTANCY AND BEHAVIORAL INTENTION TO USE MOBILE PHONES

The findings of this study indicate that there was no significant positive relationship between effort expectancy and behavioural intention to adopt mobile phones. This implied that effort expectancy did not significantly influence behavioural intention to adopt mobile phones for information access. For whatever understandable and clearness while interacting with mobile phones, effortless it is to possess and use mobile phones, and skilfulnes one can become while using a mobile phone, it does not influence the behavioural intentions of the NAADS beneficiries to adopt mobile phones for information access regarding the NAADS poverty reduction program.These findings are in line with the earlier study conducted by [23], who found that effort expectancy did not influence the behavioural intention of the respondents in adopting the 3G services. The results are in contradiction with several studies by [16]-[20], [25], [32], established significant positive relationship between effort expectancy and behavioural intention, this could be attributed to geographical scope of the study.

5.3 SOCIAL INFLUENCE AND BEHAVIORAL INTENTION TO USE MOBILE PHONES

According to the findings, there was no significant relationship between social influence and the behavioural intention to use mobile telephones for information access phones. This implied that social influence did not significantly influence behavioural intention to adapt mobile phones. Therefore, social influence does not in any way affect the NAADS beneficiaries' behavioural intention to adopt mobile phones for information access. This means that however important, influential, and valuable people are to a NAADS beneficiary, it does not influence the behavioural intention of the beneficiary to adopt mobile phones for information access. These findings are in agreement with the earlier studies by [29],[30], [22], who found out that there was a minor relationship between the social influence and behavioural intention, hence confirming the other findings of [31] who revealed the same. The finding is not in line with findings by [32], [16]-[20], in their studies established significant positive relationship between social influence and behavioural intention.

5.4 FACILITATING CONDITIONS AND BEHAVIOURAL CONDITIONS TO ADOPT MOBILE PHONES

There was a significant relationship between facilitating conditions and behavioural intention to adopt mobile telephones for information access. This implied that Facilitating conditions positively influences the behavioural intention of the NAADS beneficiaries to adopt mobile phones. Therefore, if the NAADS beneficiaries have the necessary resource to use a mobile phone, if the mobile phone they are using is compatible with other ICT technologies in place, and if the government can encourage them to use mobile phones so as to access information, then one's behavioural intentions to adopt and use a mobile phone in the NAADS poverty reduction program is influenced. These findings are supported by [51] study concerning the adoption of an online stocking system amongst the Taiwanese investors, whereby facilitating conditions were found to be very influential in determining the behavioural intention for personality traits on the internet experience. Finding is in line with findings from studies that indicated significant positive relationships between facilitating conditions and behavioural intention [16]-[20], [12].

5.5 BEHAVIROL INTENTION AND THE ADOPTION OF MOBILE PHONES FOR INFORMATION ACCESS

There was a significant positive relationship between behavioural intention and the adoption of mobile telephones for information access. This implied that behavioural intention significantly influenced the adoption of mobile telephones for information access. Therefore, behavioural intentions like intending to continue using mobile phones in the future to access and share information, recommending colleagues to use mobile phones in order to access, and sharing information and offering help to colleagues on how to use mobile phones for information access can influence the adoption of mobile phones for information access. These findings are supported by various studies, including [40] through their model found out that behavioural intention had a significant influence on mobile

learning adoption. Also [38] proved that Behavioural intention had appositive influence on the student's perception when adopting E-learning methods. This is in line by several studies such as [12], [32], [18], [19] among others who found that Behavioural Intentions to Use significantly influences and has a direct impact on the adoption and usage of a technology.

6. CONCLUSIONS

A significant positive relationship was revealed between the independent variables of performance expectance, facilitating conditions, with the dependent variable of behavioural intention to adopt mobile phones for information access. With the help of the Structural Equation Model, a confirmatory positive relationship was established between performance expectance and behavioural intention to use mobile phones for information access, facilitating conditions and behavioural intention to use mobile phones for information access, and lastly behavioural intention to use mobile phones for information access and adoption of mobile phone. However, there was no significant positive relationship between Effort Expectance (independent variable) and Behavioural Intention (dependent variable) to adopt mobile phones for information access by the NAADS beneficiaries, social influence (independent variable) and behavioural intention (dependent variable) to adopt mobile phones for information access by the NAADS beneficiaries.

7. RECOMMENDATION

Basing on the findings of this study, we recommend that there should be an enhancement in the performance of mobile phone services like setting up strong network signals and installing important mobile applications, so that the NAADS beneficiaries can be able to use it freely in their daily life, increase on their chances of accessing important information, and help them to save their time. This is because Performance Expectancy was found to be a strong predictor of the behavioural intention of the NAADS beneficiaries to adoption mobile phones for information access.

In order for the NAADS poverty reduction beneficiaries to adopt mobile phones for information access regarding the program, Facilitating Conditions like necessary resources for using a mobile phone, compatibility of a mobile phone with other ICT technologies in place, and the government's encouragement to the NAADS users to possess mobile phones for information access should be highly considered by the service providers. This is so because facilitating conditions were found to be having a significant positive relationship with the behavioural intention of the NAADS beneficiaries to adopt mobile phones for information access.

Results of this study also proved that behavioural intention is a strong predictor of the adoption of mobile phones by the NAADS beneficiaries for information access regarding the program. Therefore, the implementers of the NAADS poverty reduction program should utilize all the mobile platform for information access, because the beneficiaries intend to continue using mobile phones in the future to access and share information, recommending colleagues to use mobile phones in order to access and share information, and offering help to colleagues on how to use mobile phones for information access.

8. AREAS OF FUTURE RESEARCH

Future research should be focused on understanding how other technologies besides mobile phones, can enhance the NAADS beneficiaries to access timely information regarding the program. Information communication tool like Radios and Televisions have great potentials of extending information to distant areas all over the country. Therefore, there is a need of understanding the factors that influence people while choosing a given technology. Future research on longitudinal study on same variables be undertaken.

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