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Spring 3-19-2013

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EXAMINING FACTORS AFFECTING ADOPTION OF ONLINE PUBLIC GRIEVANCE REDRESSAL SYSTEM: A CASE OF INDIA

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Abstract

The purpose of this paper is to examine the factors influencing the adoption of the online public grievance redressal system (OPGRS) in the Indian context. This e-government initiative is based on the government's long term strategic policy that aims to reform and overhaul the Indian bureaucracy. The model developed is based on the unified theory of acceptance and use of technology (UTAUT) and includes the constructs such as performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, and behavioral intention. The empirical outcomes provided the positive significant relationships for all 11 hypotheses established using six constructs. The empirical evidence and discussion presented in the study can help the Indian government to improve upon and fully utilize the potential of OPGRS as a useful tool for transparent and corruption free country. The research also provides its limitations and future research directions, and implications for theory and practice at the end.

Keywords: E-Government, OPGRS, Adoption, UTAUT, Citizens, India

1.0 Introduction

E-Government is defined as the use of Internet in the operation of the government (Cohen and Eimicke, 2002; Jorgensen and Cable, 2002). The worldwide explosion and acceptance of the Internet has shaped several implications for the public sector. Rather than duplicating their traditional brick and mortar equivalents, government agencies with digital delivery systems are non-hierarchical, non-linear, interactive in nature, and never closed (Schaupp et al., 2010; West, 2008). The current development of e-government services has opened new opportunities to deliver information and services more conveniently and cost effectively to the citizens (Wang and Shih, 2009). E-Government is an essential constituent in the transformation of any government, serving as a means towards augmenting transparency, accountability, and decent governance; making the government more result-oriented, efficient and citizen-centric, and enabling citizens and businesses to access government services and information as proficiently and as effectually as possible through the use of Internet and other channels of communication (Aggelidid and Chatzoglou, 2008; Lin

et al., 2011). Also, the purpose of e-government development and implementation is to endorse people's information literacy, lessen the digital divide, and warrant that such systems can be widely utilized (Wang and Shih, 2009).

OPGRS is one such specific e-government system which is dedicated for registering complaints by citizens of India that subsequently resolved by the designated government officials. This system is largely meant for addressing the grievances, issues, and problems of citizen's day-to-day life. It provides a huge benefit to the citizens and eventually the society by resolving their problems without much trouble. Grievance redress mechanism is a part and parcel of the machinery of any administration. No administration can claim to be answerable, responsive, and user-friendly unless it has established a proficient and effectual grievance redress mechanism. In fact, the grievance redress mechanism of an organization is an approximation to scrutinize its efficiency and effectiveness as it provides significant feedback on the working of its administration. The grievances from citizens are accepted at various points. There are mainly two designated agencies in the central government handling these grievances namely Department of Administrative Reforms and Public Grievances, Ministry of Personnel, Public Grievances and Pensions, and Directorate of Public Grievances, Cabinet Secretariat. The public grievance redress mechanism functions in India on a decentralized basis. An officer of the level of Joint Secretary is designated as Director of Grievances.

The key motivations of grievances are mainly due to the socio-economic reasons such as prevalent corruption in the ministries, government organizations, and bureaucratic systems, which are ubiquitous in the current society as far as country like India is concerned. The people feel themselves helpless against it and are bound to tolerate it in their day-to-day lives. Therefore, the significance of such e-government systems is felt even more for smooth, transparent and impartial running of the governments. In addition, even though the government is implementing OPGRS, citizens might not be able to use them. However, the success of the system depends largely on whether or not citizens are willing to adopt this relatively new system. Many prior research studies (e.g., Lean et al., 2009; Lin et al., 2011; Loo et al., 2009; Schaupp et al., 2010; Yeow and Loo, 2009) have examined the factors of specific e-government adoptions. However, no research has yet examined the factors influencing the adoption of OPGRS in Indian context. Therefore, examining the factors of this system adoption

would be timely and extremely research worthy to let the designers, practitioners, and the government know about the current state of its potential adoption.

By integrating constructs from eight prominent models/theories, Venkatesh et al. (2003) proposed a theory called the UTAUT to explain IT use behavior. They suggested that further development and validation of the theory is needed. Given that OPGRS is a kind of information technology (IT) application and the UTAUT has not yet been validated in the context of e-government/OPGRS, this study utilizes the UTAUT as the theoretical basis to investigate the determinants of acceptance of the OPGRS system. The findings of this study would not only help e-government authorities to develop better OPGRS system and promote new IT to citizens, but would also provide important insights into the research on e-government acceptance in general, and on the OPGRS acceptance in particular.

2.0 Literature Review

A number of studies (e.g., Carter and Schaupp, 2009; Carter et al., 2011; Chan et al., 2010; Hung et al., 2007; Loo et al., 2009; Schaupp et al., 2010; Wang and Shih, 2009; Yeow and Loo, 2009) have used the UTAUT as a base model for examining the factors influencing the adoption of e-government systems. Based on the empirical evidence of the UTAUT, Hung et al. (2007) identified that all the core constructs of this model were found to be the significant predictors of user's intention to accept and use information kiosk system. Using the sample of 260 MBA students of a US university, Carter and Schaupp (2009) revealed that performance expectancy, social influence, trust of the e-filer, and optimism bias were the significant predictors of the E-File adoption. Loo et al. (2009) explored the levels of user acceptance of the national identity card (NIC) and driving licence (DL) applications embedded in the Malaysian government multipurpose smart card (called MyKad). Based on the UTAUT model, the research discovered that Malaysians did not have high intentions to use MyKad's NIC and DL applications. This research, however, had successfully adapted the UTAUT model to study the user's acceptance of MyKad applications.

Based on the UTAUT model, Yeow and Loo (2009) also examined the acceptance of ATM and transit applications (Touch 'n' Go) embedded in Malaysian multipurpose smart identity (also called as MyKad). The results indicated that Malaysians did not have strong intentions to use the two applications due to lack of understanding of the

benefits and the efforts needed to use the applications. Based on the UTAUT, Wang and Shih (2009) examined the determinants of intention to use and use behaviour of information kiosks. Data collected from 244 respondents in Taiwan were validated against the research model and the results provided a full support of all the constructs toward intention to use and usage behavior of the information kiosk in absence of the moderating variable. However, a partial support for the applicability of the UTAUT was found with moderators (i.e., male vs. female, and younger vs. older people).

Chan et al. (2010) developed a test model to examine the adoption of a smart card for citizen identification and access to e-government services. The authors identified various external factors (i.e., compatibility, flexibility, avoidance of personal interaction, trust, self-efficacy, convenience, assistance, and awareness) as the positive and significant antecedents of the core constructs of the UTAUT, i.e., performance expectancy, effort expectancy, social influence, and facilitating conditions, which eventually influenced citizen satisfaction. Schaupp et al. (2010) examined the e-file adoption of the US taxpayers using the UTAUT model integrated with the other factors including online trust, perceived risk, and optimism bias. The results indicated that all the factors including performance expectancy, social influence, facilitating conditions, and optimism bias had a significant impact on e-file adoption intention.

Based on a survey of 304 US taxpayers, Carter et al. (2011) identified the influence of factors responsible for taxpayer's intention to adopt the e-file system. The results indicated that the factors taken from the UTAUT such as performance expectancy, effort expectancy, and social influence played an important role in predicting taxpayer's e-filing intentions. Moreover, Web-based self-efficacy and perceived security control also had a positive impact on the taxpayer's intention to use e-file system.

3.0 Research Model Development and Hypotheses

3.1 Theoretical Background – UTAUT

Relatively, many theoretical models have designed and planned to examine technology acceptance in the information technology literature (Lean et al., 2009). The research model to be developed and tested in this study is primarily based on the

UTAUT (Venkatesh et al., 2003). We have chosen this model because it integrates elements across the eight theories/models. The eight theories/models include the technology acceptance model (TAM) (Davis, 1989), the theory of reasoned action (TRA) (Fishbein and Ajzen, 1975), the theory of planned behaviour (TPB) (Ajzen, 1991), the combined TAM and TPB (C-TAM-TPB) (Taylor and Todd, 1995), the innovation diffusion theory (IDT) (Moore and Benbasat, 1991; Rogers 2003), the social cognitive theory (Bandura, 1986; Compeau and Higgins, 1995), the motivational model (Davis et al., 1992), and the model of PC utilization (Thompson et al., 1991; Triandis, 1977). Comparing to the prior models, the UTAUT was able to explain 70% of technology acceptance behaviour, a substantial improvement over previous models, which used to explain only about 40% of acceptance (Venkatesh et al., 2003).

As a result, being unified in nature, the UTAUT is considered to be an enhanced model with robust characteristics and parsimonious set of constructs that could better explain the factors influencing individual's intention and usage (Lean et al., 2009). In detail, the UTAUT contains four core determinants of intention and usage namely performance expectancy, effort expectancy, social influence, and facilitating conditions. The variables age, gender, experience, and voluntariness to use moderate the key relationships in the model (Venkatesh et al., 2003).

3.2 Overview of Research Model

The present study has developed a research model based on the UTAUT model framework with one additional variable: self-efficacy. Unlike the UTAUT, the proposed model contains only performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioral intention without the presence of any moderating variables. The use behaviour has not been considered in our model due to the fact that the data were collected from the potential adopters of the system. They were rather shown the workings of the system and its inherent advantages and are expected to use this system in the future. Therefore, measuring their use behaviour is beyond the scope of this paper. Unlike the original UTAUT model, we analyse the influence of facilitating conditions onto the intention to use the OPGRS system. This has been done in light of its significance in some prior studies (e.g., Sambasivan et al., 2010; Schaupp et al., 2010; Yeow and Loo, 2009) of e-government adoption research in particular.

Moreover, we have also incorporated an additional construct called self-efficacy in the model. The self-efficacy is the judgement of one's ability to use a technology to achieve a particular job or task. This variable is considered deemed relevant in our research because we believe that individual's technological efficiency enhances his or her intention to use the system provided it is easy to use and useful. In fact, prior studies (e.g., Chiu and Wang, 2008; Schaper and Pervan, 2007; Susan et al., 2010) on IS research have found the relationship between self-efficacy and effort expectancy as quite significant as well.

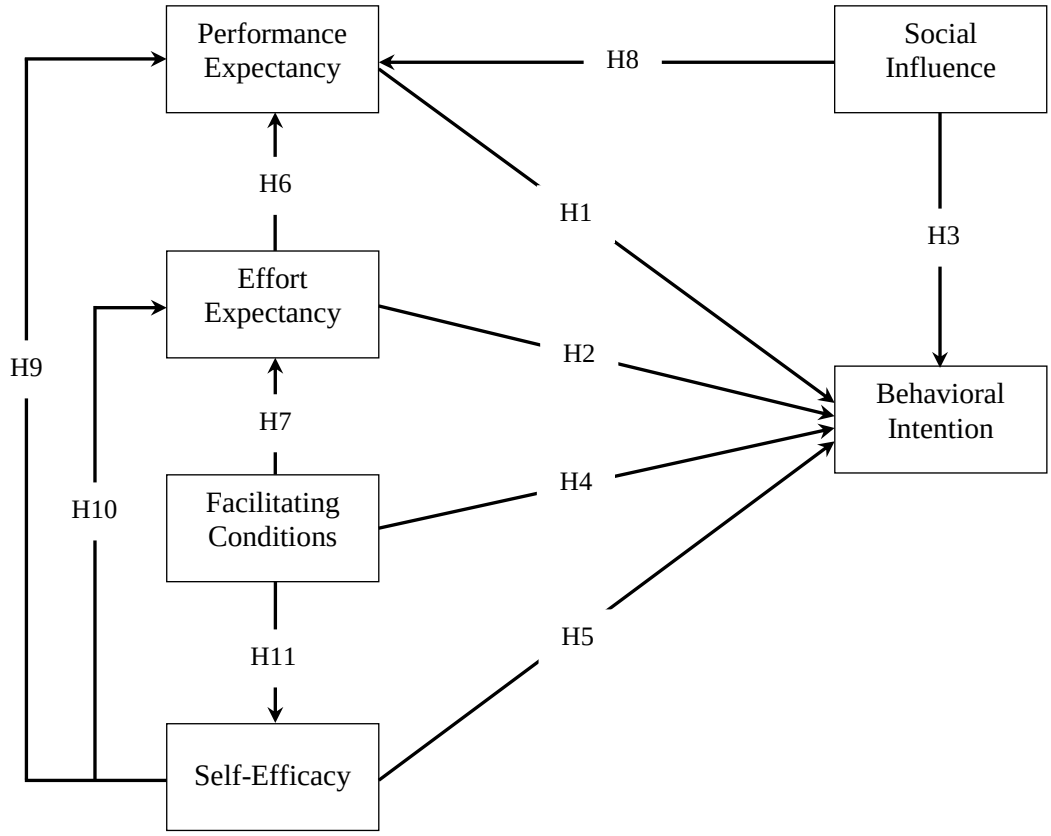

Figure 1. Proposed Research Model

Therefore, we test its effect directly as well as through performance expectancy and effort expectancy onto the behavioral intention to use OPGRS. The influence of self-efficacy on behavioral intention has been analysed and found significant across many studies of IS (e.g., Abu-Shanab, 2011; Chiu and Wang, 2008; Giannakos and Vlamos, 2013) and e-government (e.g., Carter and Schaupp, 2008; Carter et al., 2011; Sahu and Gupta, 2007) research. Hence, our proposed model consists of six constructs including five constructs (i.e., performance expectancy, effort expectancy, social influence, facilitating conditions, and behavioral intention) from the UTAUT and self-

efficacy derived from the SCT. The design for the proposed model and the corresponding hypotheses are formulated in Figure 1.

3.3 Hypotheses Development

Under the proposed research model, we have formulated 11 hypotheses based on the relationships between six constructs adopted. A brief summary of the definitions for the core constructs used in the proposed research model is presented in Table 1.

Variable/Construct	Definition
Performance Expectancy	Performance expectancy is defined as the degree to which an individual believes that using the system will help him or her to attain gains in job performance (Venkatesh et al., 2003).
Effort Expectancy	Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003).
Social Influence	Social influence is defined as the degree to which an individual perceives that important others believe that he or she should use the new system (Venkatesh et al., 2003).
Facilitating Conditions	Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system (Venkatesh et al., 2003).
Self-Efficacy	Self-efficacy is the judgement of one's ability to use a technology (e.g., computer) to accomplish a particular job or task (Bandura, 1986).

Table 1. Definitions of core constructs used in proposed research model

Performance Expectancy

Performance expectancy is defined as "the degree to which an individual believes that using the system will help him or her to attain gains in job performance". The five variables including perceived usefulness (TAM/TAM2 and C-TAM-TPB), extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT), and outcome expectations (SCT) are similar in nature to performance expectancy. These constructs have been regarded as similar to the others in some previous literature (Venkatesh et al., 2003). Venkatesh et al. (2003) found performance expectancy as the strongest predictor of behavioural intention among the other constructs and found it significant at every level of measurement including the voluntary and mandatory settings. This variable has performed significantly on behavioral intention across a number of studies (Carter et al., 2011; Hung et al., 2007; van Dijk et al., 2008; Wang and Shih, 2009; Yeow and Loo, 2009) of the e-government adoption research as well. In the present context, performance expectancy refers to the perception that using the OPGRS system will be useful and would help users to get away with the problems of registering their day-to-day or even severe complaints against the corrupt practices of the government departments. Therefore, we hypothesize:

H1: Performance expectancy has a positive and significant influence on behavioural intention to use the OPGRS system.

Effort Expectancy

Effort expectancy is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003). Three variables including perceived ease of use (TAM/TAM2), complexity (MPCU), and ease of use (IDT) encapsulate the concept of effort expectancy (Venkatesh et al., 2003). Venkatesh et al. (2003) established that effort expectancy was the stronger predictor of the behavioral intentions. Prior research on IS/IT adoption (e.g., Giannakos and Vlamos, 2013; Luo et al., 2010; Wu et al., 2012) in general and e-government adoption (e.g., Carter et al., 2011; van Dijk et al., 2008, Yeow and Loo, 2009) in particular have also endorsed this relationship. Moreover, prior studies (e.g., Gao and Deng, 2012; Nov and Ye, 2009; Zhou et al., 2010) have also established a significant relationship between effort and performance expectancy.

In the present context, effort expectancy refers to the perception that using the OPGRS system will be easy to use and its this characteristic will enhance its usefulness as well. Therefore, it is expected that the influence of effort expectancy will remain positive and significant on behavioural intention and performance expectancy for the system in question. Hence, we hypothesize:

H2: Effort expectancy has a positive and significant influence on behavioural intention to use the OPGRS system.

H6: Effort expectancy has a positive and significant influence on performance expectancy of the OPGRS system.

Social Influence

Social influence is defined as the degree to which an individual perceives that important others believe that he or she should use the new system. Three constructs from earlier theories have attempted to measure social influence. These include subjective norm from the TRA, the TAM2, the TPB, and the C-TAM-TPB, social factors from the MPCU, and image from the IDT (Venkatesh et al., 2003). In the present study, social influence refers to the perception where individual would use the OPGRS system complying with his or her friends, family, or any important ones who believe that using the system is beneficial. Many studies (e.g., Abu-Shanab, 2011; Carter et al., 2011; Sahu and Gupta, 2007; Yeow and Loo, 2009) have established the

positive and significant relationships between social influence and behavioral intention. Moreover, we believe that users of the OPGRS system would perceive it as useful if it is referred to them by their important others. The relationship of social influence on performance expectancy has been supported by many studies (e.g., Gao and Deng, 2012; Lee and Lin, 2008; Mayer et al., 2011) of IS research as well. Deriving from the above arguments, we hypothesize:

H3: Social influence has a positive and significant influence on behavioural intention to use the OPGRS system.

H8: Social influence has a positive and significant influence on performance expectancy of the OPGRS system.

Facilitating Conditions

Facilitating conditions are defined as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. This variable captures concepts from the other variables including perceived behavioural control (TPB, DTPB, and C-TAM-TPB), facilitating conditions (MPCU), and compatibility (IDT) (Venkatesh et al., 2003). Venkatesh et al. (2003) found that there was no significant relationship between facilitating conditions and behavioral intention, arguing that such lack of effect could possibly be an outcome of the effect being captured by effort expectancy. However, a number of studies (e.g., Carter et al., 2012; Lee and Lin, 2008; Loo et al., 2011; Yeow and Loo, 2009) on the IS research have shown a positive and significant relationship between facilitating conditions and behavioral intention even in the presence of effort expectancy. In the present context, we believe that better organizational and technical infrastructure might motivate users toward their enhanced intention to use the system. Moreover, we also argue that adequate infrastructural facilities to use the system can also enhance the users' ability toward using the system with better efficiency and also make the system easy to use. Therefore, we hypothesize:

H4: Facilitating conditions has a positive and significant influence on behavioural intention to use the OPGRS system.

H7: Facilitating conditions has a positive and significant influence on effort expectancy of the OPGRS system.

H11: Facilitating conditions has a positive and significant influence on user's self-efficacy of the OPGRS system.

Self-Efficacy

Self-efficacy deals with an individual's perception of his or her ability to use the system on his or her own (Bandura, 1986). This factor is considered important as it deals with the level of comfort a person has in working with the e-government system (Sahu and Gupta, 2007). Many studies on IS research (Abu-Shanab, 2011; Giannakos and Vlamos, 2012; Jong and Wang, 2009) and e-government adoption (e.g., Carter et al., 2011; Fu et al., 2006; Sahu and Gupta, 2007) have also advocated that it is one such factor which can significantly influence user's intention to use the system. Moreover, prior studies (e.g., Schaper and Pervan, 2007; Zhao, 2010) have also acknowledged self-efficacy to positively and significantly influence effort expectancy. Bandura (1982) argued that an individual with high self-efficacy would more likely to perform the behaviour in the future. Linking it to the present context, we also believe that individual's enhanced skills and ability of using the OPGRS system will influence his intention to use it. In addition, we also argue that higher self-efficacy of an individual would result to his better performance and effort expectancy. Therefore, we hypothesize:

H5: Self-efficacy has a positive and significant influence on behavioural intention to use the OPGRS system.

H9: Self-efficacy has a positive and significant influence on performance expectancy the OPGRS system.

H10: Self-efficacy has a positive and significant influence on effort expectancy of the OPGRS system.

4.0 Research Methodology

For the purpose of examining the success of the OPGRS system, we considered survey as an appropriate research method (Cornford and Smithson, 1996; Choudrie and Dwivedi, 2005). There are various ways to capture the data, however, a self-administered questionnaire was found to be suitable as a primary survey instrument of data collection in this research. This is due to the fact that this method takes care of the issue of reliability of information by reducing and eliminating the way the questions are asked and presented (Conford and Smithson, 1996). Moreover, collecting data from the majority of respondents within a short and specific period of time was a critical issue of this research (Fowler, 2002). Therefore, only closed and

multiple-choice questions were included in the questionnaire. The final questionnaire consisted of total 38 questions including 10 questions from respondent's demographic characteristics and 28 questions on the seven different constructs of the proposed research model. All these questions were multiple-type, closed-ended and seven-point Likert scale type questions. Likert scales (1-7) with anchors ranging from "strongly disagree" to "strongly agree" were used for all non-demographic based questions.

The sample of the study consists of wide array of respondents from different cities of India including New Delhi, Pune, Mumbai, Bangalore, Patna, Siliguri, and Gangtok. Initially, a preliminary version of the questionnaire was tested on the 32 respondents including staff and postgraduate students of an academic institution in India to verify its appropriateness and comprehensiveness. A few trivial changes were made to the questionnaire on the feedback received from the respondents. Finally, a total of 1500 questionnaires were distributed to the respondents in the seven cities in the course of one and a half months duration. The data related to the adoption of the OPGRS system were collected only through the non-adopters of the system. This was done purposefully realizing the fact that the system is relatively new.

However, most of the respondents in this research are well acquainted with the computer system and Internet technology and have been using it for quite some time. All the respondents were briefed and demonstrated about the functioning of the OPGRS at one-to-one or group basis and in some cases they were given maximum two days of time to complete the questionnaire. However, some of the questionnaires were made to respond on spot. A total of 485 completed survey questionnaires were returned to us. The further scrutiny of questionnaires revealed that 66 of them were partially completed and so rejected from the subsequent analysis. Hence, we were left out with 419 usable responses, which made the basis for our empirical analysis for measuring the success of the OPGRS system. The overall response rate was found to be 32.3% with 27.9% valid questionnaires.

5.0 Research Findings

5.1 Respondents' Demographic Profile

As per the questionnaire results, the average respondent's age ranges from 20 to 34, with males accounting for 67.8% of the sample and 32.2% were female. The majority

of the population (56.1%) belongs to student community with a fair representation from public- and private-sector employees (29.3%). As far as the educational qualifications are concerned, 82% of the total population are having a minimum degree of graduation. The computer and Internet literacy and awareness of the respondents can be judged from their very high computer and Internet experience percentage (≈96%). This higher frequency is also supported by their computer and Internet access at various places and Internet use frequency, which is very high. Therefore, it is argued that the sample of respondents could be the best-fit potential users and adopters of the OPGRS system.

5.2 Reliability Analysis - Cronbach's Alpha (α)

Reliability analysis was performed using Cronbach's alpha (α). It was used for determining the reliability of the scale, which provides an indication about the internal consistency of the items measuring the same construct (Hair et al., 1992; Zikmund, 1994). Cronbach's alpha reliability for all the constructs is in the range 0.553-0.796, which is quite acceptable. A Chronbach alpha (α) of greater than 0.70 is considered to be good (Nunnaly, 1978; Hair et al., 1992). Therefore, alphas imply moderately stronger reliability for majority of constructs except performance expectancy, which was found at the lower moderate level.

Construct	Sample Size	# of Items	Cronbach's Alpha (α)	Reliability Type
Performance Expectancy (PE)	419	3	0.553	Moderate
Effort Expectancy (EE)	419	3	0.716	High
Social Influence (SI)	419	4	0.675	Moderate
Facilitating Conditions (FC)	419	4	0.689	Moderate
Self-Efficacy (SE)	419	3	0.645	Moderate
Behavioral Intention (BI)	419	3	0.796	High

Table 2. Cronbach's alpha (α) of constructs

5.3 Descriptive Statistics

Table 3 presents the mean and standard deviation (S.D.) for all the six constructs. The high overall mean for most of the constructs, except social influence, indicates that respondents react favourably to the system adoption measures examined. This result is quite satisfying looking at the respondents as potential adopters of the system in question and have not used it anytime in the past. To be particular, performance

expectancy showed the highest mean (i.e., 5.34), whereas social influence got the lowest (i.e., 4.75).

Construct	#	N	Mean	S.D.
Performance Expectancy (PE)	419	3	5.34	0.99
Effort Expectancy (EE)	419	3	5.15	1.09
Social Influence (SI)	419	4	4.75	1.11
Facilitating Conditions (FC)	419	4	4.98	0.98
Self-Efficacy (SE)	419	3	4.98	1.15
Behavioral Intention (BI)	419	3	5.26	1.23

Table 3. Descriptive statistics of the constructs

5.4 Hypotheses Testing

Table 4, 5, 6, and 7 present output of linear regression model analysed using SPSS 20.0. The analysis presented in Table 4 supported all the hypotheses (i.e. H1, H2, H3, H4, and H5) on behavioral intention as positive and significant. The constructs PE, EE, SI, FC, and SE explain 26.4% (adjusted R^2) of the variance in respondents' intention to use the OPGRS systems. Since, the overall model is significant (F=31.013, p=0.000), the significance of the independent variable was further examined. All independent variables were found significant with maximum 5% significance level specifically with PE, and SE found with 1% significance level. Therefore, all the five hypotheses H1, H2, H3, H4, and H5 are supported.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Result
	B	Std. Error	Beta			
(Constant)	1.257	0.329		3.820	0.000	
PE	0.219	0.073	0.177**	2.999	0.003	Supported (H1)
EE	0.132	0.067	0.117*	1.976	0.049	Supported (H2)
SI	0.118	0.053	0.107*	2.237	0.026	Supported (H3)
FC	0.154	0.071	0.123*	2.161	0.031	Supported (H4)
SE	0.167	0.058	0.156**	2.856	0.005	Supported (H5)
Model R^2	0.273					
Adjusted R^2	0.264					
F/Significance	31.013/0.000					

Table 4. Regression analysis results of PE, EE, SI, FC, and SE on BI

[Note: *: p<0.05, **: p<0.01; ***: p<0.001][Dependent Variable: Behavioral Intention]

Table 5 presents the β-value of independent variables EE, SI, and SE on PE. The analysis shows a stronger effect of EE (β=0.434) on PE than SI (β=0.199) and SE (β=0.163). This indicates that the more conveniently the OPGRS system is operated, the more useful it would be. On the other hand, although SI and SE represent significant relationship with PE, they are not as strong as with EE. Therefore, it can be

perceived that user-friendly system is considered more useful than when the intention to use the system is decided deriving from the influence of referent others or one's own self-confidence and skills to use the system. All the three hypotheses H6, H8, and H9 have been found positive and significant on performance expectancy. The independent constructs (i.e. EE, SI, and SE) explains 40.8% (adjusted R^2) of the variance in the performance expectancy of the system.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Result
	B	Std. Error	Beta			
(Constant)	1.756	0.218		8.071	0.000	
EE	0.395	0.042	0.434***	9.326	0.000	Supported (H6)
SI	0.178	0.037	0.199***	4.873	0.000	Supported (H8)
SE	0.142	0.042	0.163**	3.385	0.001	Supported (H9)
Model R^2	0.412					
Adjusted R^2	0.408					
F/Significance	97.080/0.000					

Table 5. Regression analysis results of EE, SI, and SE on PE

[Note: *: p<0.05, **: p<0.01; ***: p<0.001][Dependent Variable: Performance Expectancy]

Table 6 presents the β-value of independent variables FC, and SE on EE. The analysis shows a stronger effect of SE (β=0.426) on EE than FC (β=0.377). This indicates that the convenience to use the system is determined more by individuals' skills and abilities to use the system to get the complaint registered than merely by having sufficient organizational and technical infrastructure available to use it. Both the hypotheses H7 and H10 are supported. The overall model was found significant (F=175.768, p=0.000), and the significance of the individual independent variables was further verified. It was found that both constructs (i.e. FC and SE) were found significant on EE with 0.001 significant levels. Moreover, the independent constructs (i.e. FC and SE) explains 45.5% (adjusted R^2) of the variance in the effort expectancy of the system.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Result
	B	Std. Error	Beta			
(Constant)	1.053	0.225		4.681	0.000	
FC	0.418	0.044	0.377***	9.462	0.000	Supported (H7)
SE	0.405	0.038	0.426***	10.693	0.000	Supported (H10)
Model R^2	0.458					
Adjusted R^2	0.455					
F/Significance	175.768/0.000					

Table 6. Regression analysis results of FC and SE on EE

[Note: *: p<0.05, **: p<0.01; ***: p<0.001][Dependent Variable: Effort Expectancy]

Table 7 presents the β-value of independent variables FC on SE. The analysis shows a stronger effect of FC (β=0.421) on SE. This shows that better organizational and technical infrastructure lead to greater enhancement of individual's skills and abilities to operate the system and get his or her complaint registered. The hypothesis H11 is supported. The overall model was found significant (F=90.013, p=0.000), and the significance of the independent variable FC was further verified. It was found that both construct (i.e. FC) was found significant on SE with 0.001 significant levels.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Result
	B	Std. Error	Beta			
(Constant)	2.533	0.263		9.621	0.000	
FC	0.492	0.052	0.421***	9.488	0.000	Supported (H11)
Model R^2	0.178					
Adjusted R^2	0.176					
F/Significance	90.013/0.000					

Table 7. Regression analysis results of FC on SE

[Note: *: p<0.05, **: p<0.01; ***: p<0.001][Dependent Variable: Self-Efficacy]

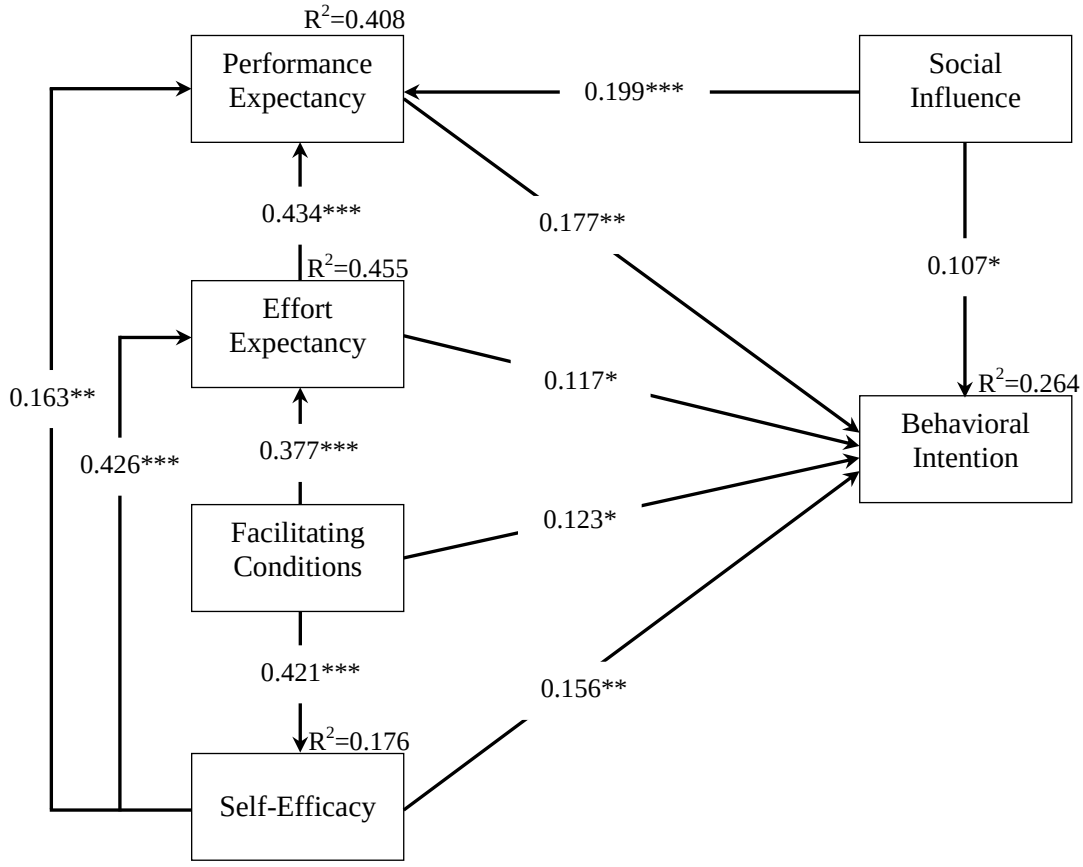

Figure 2. Validated research model to measure behavioral intention to use OPGRS

The hypothesis testing results of linear regression with the coefficient values (i.e. β-value), p-value, and R^2-value are presented along the research model in Figure 2.

6.0 Discussion

The study's overall purpose was to examine user's intention to adopt the OPGRS system. This study develops and validates a research model that considers the UTAUT as a base model and extends it by adding an additional variable called self-efficacy. As majority of the respondents are computer and Internet literate, the construct self-efficacy helps to explain how this construct can play a significant role in respondent's positive intention to use the system. The proposed model enhances our understanding of intention to adopt the OPGRS system.

As anticipated, performance expectancy, effort expectancy, and social influence were found to have a significant positive influence on behavioral intention to use the OPGRS system. Also, facilitating conditions and self-efficacy were observed to have a predictor of behavioral intention. The results indicate that performance expectancy as the most significant determinant of the OPGRS acceptance with a standardized coefficient of 0.177 (H1). This finding indicates that performance expectancy is still perceived by users as the core determinant of acceptance and lends further support to previous technology acceptance studies (Gefen and Straub, 2004; Gefen et al., 2003; Straub et al., 2002; Venkatesh et al., 2003) that derived to the similar conclusions. Moreover, we also conjectured self-efficacy to exert direct influence over the behavioral intention to adopt this relatively new technology. The findings supported this inference and proved that even if users have ability and skill to use the similar system, they can be more inclined to use this system. Similar, findings were obtained from the prior IS/IT adoption studies (e.g., Carter et al., 2011; Sahu and Gupta, 2007). For example, Carter et al. (2011) showed that belief about taxpayers' technical abilities had a significant influence on their intention to use the system.

Another point of interest in this study is how the constructs including effort expectancy, social influence and self-efficacy affect performance expectancy of the OPGRS systems. The analysis indicated effort expectancy (with β=0.434) as the strongest predictor of performance expectancy among three. However, all of them were found significant. The similar strong significant relationship between effort expectancy and performance expectancy has been visualized in prior IS research (e.g.,

Chiu and Wang, 2008; Gao and Deng, 2012). For example, Chiu and Wang (2008) found that the effect of effort expectancy was one of the strongest among all while examining the web-based learning continuance intention. As far as the use of the OPGRS system is concerned, we believe that more the system is free of effort in use; the more useful it would be perceived as. However, the usefulness can also be perceived when referent others suggest to use the system or one's own ability to deal with the similar system inclines an individual to use it. And, both of these conditions were also found significant in context of this research.

In addition, we also found the positive and significant empirical evidence of the perceived ease of use (i.e., effort expectancy) of the OPGRS system being impacted by self-efficacy and facilitating conditions. Like previous studies (e.g., Chiu and Wang, 2008; Zhao, 2010) on IS research, the impact of self-efficacy was found quite stronger on effort expectancy (β=0.426). We also strongly advocate that individual's belief in his or her ability to use technology to accomplish a task would make the task easier to perform. Moreover, as we have witnessed that most of the respondents are computer and Internet literate, it is also established that provided appropriate facilities to use the OPGRS system would eventually make it easier for further use. Also, it was found that enhanced facilitating conditions can improve user's belief about his or her ability to use the system in a better way. In other words, better infrastructure and specific training provided to the users by the government can improve the belief toward utilizing their abilities to perform the intended task.

7.0 Conclusion

We developed an extended framework of the UTAUT to examine user's acceptance of the OPGRS system in Indian context. The proposed model integrates self-efficacy attribute along with the UTAUT's core constructs (i.e., PE, EE, SI, and FC) onto behavioral intention to use the system. In addition, EE, SI, and SE on PE, SE and FC on EE, and FC on SE were also supported. Our empirical test supported all 11 hypotheses among six constructs.

Therefore, it seems quite evident from the collected data that the system is seen positively as far as its intent of adoption is concerned by its potential adopters. However, it was also realized that the government needs to take more initiatives toward providing infrastructural support and appropriate training and also toward

making the system more user-friendly in order to invite extensive participation of the users. This conclusion is drawn based on the relatively lower values of standardized coefficients of effort expectancy and facilitating conditions on behavioral intention though they are significant. The government should gain ground on user's confidence by reacting to the users' complaints in timely and prompt manner. This will allow the users to diffuse the benefits of the system and enhance the possibility of their referent others also tempted to use the system.

In light of the impact of the adoption factors discussed above for the adoption of the OPGRS system, the government is challenged to enhance the OPGRS system that satisfy the needs, desires, and perception of the users. The government's must-do focus to exaggerate system's usefulness, user-friendliness, and building up user's confidence is also required due to the fact that these factors indirectly mediate the adoptive intention of the OPGRS system. The development and validation of such models would lead to considerable improvements in the effective implementation of the OPGRS system.

7.1 Limitations and Future Research Directions

Although our findings were encouraging and useful, the study had several limitations. First, our results obtained from the study may not be generalized to the other countries' perspective as the data were collected only from the few cities and largely from the computer and Internet literates of India. The future research might cover even the larger sample from more diverse locations to analyse the complete UTAUT model including moderators. Second, the data were collected only from the potential adopters of the OPGRS system; therefore users who had already adopted the system might have different perception toward their continuing intention and use of the system and hence, a caution should be taken while results are interpreted for the existing users of such systems. Third, the data are cross-sectional in nature. Individual's intention to use the OPGRS should be a continuous process and longitudinal data would provide a better picture of it. Lastly, the usage of the OPGRS system is voluntary in nature and hence its findings cannot be generalized to mandatory settings. The future research should consider the mandatory use from the government perspective and analyse its adoptive intention from the government officials' perspective, which provide solutions to the users' problems.

7.2 Implications for Theory and Practice

Our research contributed to an overall conceptual understanding of the nature and importance of the factors influencing the adoption of the OPGRS system. Our research also confirmed that self-efficacy is a meaningful construct within the context of OPGRS system. The results indicated that citizens with higher self-efficacy are more likely to adopt the system for registering complaint. This study also serves as a bridge by extending the e-government research into the specific domain of the online public grievance system. From a practical perspective, our study implied that what the understanding of performance expectancy, effort expectancy, social influence, facilitating conditions, and self-efficacy mean to the citizens.

Developers and designers of the OPGRS system need to concentrate toward developing more user-friendly and useful systems, so that users can easily adopt it as a means to register their complaints. The system should be enhanced with such design where it should always reflect the current status of one's complaint and the likely period of time which it would take to resolve it. Developing such mechanism will serve users' larger perspective and would allow the system to be adapted to a larger citizens' base.

References

Abu-Shanab, E. A. (2011) *Education level as a technology adoption moderator*, 3rd International Conference on Computer Research and Development, 1, 324-328.

Aggelidid, V. P. and Chatzoglou, P. D. (2008) *Using a modified technology acceptance model in hospitals*, Journal of Medical Informatics, 78(2), 115-126.

Ajzen, I. (1991) *The theory of planned behavior*, Organizational Behavior and Human Decision Processes, 50(2), 179-211.

Bandura, A. (1982). *Self-efficacy mechanism in human agency*, American Psychologist, 37(2), 122-147.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory, Prentice-Hall, Englewood Cliffs, NJ.

Brown, S. A., Dennis, A. R. and Venkatesh, V. (2010) *Predicting collaboration technology use: Integrating technology adoption and collaboration research*, Journal of Management Information Systems, 27(2), 9-54.

Carter, L. and Schaupp, L. C. (2009) *Relating Acceptance and Optimism to E-File Adoption*, International Journal of Electronic Government Research, 5(3), 62-74.

Carter, L., Schaupp, L. C., Hobbs, J. and Campbell, R. (2012) *E-Government Utilization: Understanding the Impact of Reputation and Risk*, International Journal of Electronic Government Research (IJEGR), 8(1), 83-97.

Carter, L., Shaupp, L. C., Hobbs, J. and Campbell, R. (2011) *The role of security and trust in the adoption of online tax filing*, Transforming Government: People, Process and Policy, 5(4), 303-318.

Chan, F. K. Y., Thong, J. Y. L., Venkatesh, V., Brown, S. A., Hu, P. J-H. and Tam, K. Y. (2010) *Modeling Citizen Satisfaction with Mandatory Adoption of an E-Government Technology*, Journal of the Association for Information Systems, 11(10), 519-549.

Chiu, C. M. and Wang, E. T. (2008) *Understanding Web-based learning continuance intention: The role of subjective task value*, Information & Management, 45(3), 194-201.

Choudrie, J. and Dwivedi, Y.K. (2005) *Investigating the research approaches for examining technology adoption issues*, Journal of Research Practice, 1(1), Article D1.

Cohen, S. and Eimicke, W. (2002) *The use of the Internet in government service delivery*, In M.A. Abramson, and G.E. Means (Eds.), E-Government 2001, 9-43. Lanham, Maryland: Rowman & Littlefield Publishing, Inc.

Compeau, D. R. and Higgins, C. A. (1995) *Computer Self-Efficacy: Development of a Measure and Initial Test*, MIS Quarterly, 19(2), 189-211.

Cornford, T. and Smithson, S. (1996) Project Research in Information Systems: A Student's Guide, London: Macmillan Press Ltd.

Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1992) *Extrinsic and Intrinsic Motivation to Use Computers in the Workplace*, Journal of Applied Social Psychology, 22(14), 1111-1132.

Fishbein, M. and Ajzen, I. (1975) Belief, attitude, intention and behavior: An introduction to theory and research, Reading, MA: Addison-Wesley.

Fowler, F. J. (2002) Survey Research Methods, London: SAGE Publications Inc.

Fu, J-R., Chao, W-P. and Farn, C-K. (2006) *Acceptance of electronic tax filing: A study of taxpayer intentions*, Information & Management, 43, 109-126.

Gao, T. and Deng, Y. (2012) *A study on users' acceptance behavior to mobile e-books application based on UTAUT model*, 3rd International Conference on Software Engineering and Service Science (ICSESS), 376-379.

Gefen, D., Karahanna, E. and Straub, D. (2003) *Trust and TAM in online shopping: An integrated model*, MIS Quarterly, 27(1), 51-90.

Gefen, D. and Straub, D. W. (2004) *Consumer trust in B2C e-commerce and the importance of social presence: experiments in e-products and e-services*, Omega, 32(6), 407-424.

Giannakos, M. N. and Vlamos, P. (2013) *Educational webcasts' acceptance: Empirical examination and the role of experience*, British Journal of Educational Technology, 44(1), 125-143.

Hair, J. F., Anderson, R. E., Tatham, R. L. and Black, W.C. (1992) Multivariate data analysis, with readings (3rd Ed.) New York, NY: Macmillan Publishing Company.

Hung, Y-H., Wang, Y-S. and Chou, S-C. T. (2007) *User Acceptance of E-Government Services*, Pacific Asia Conference on Information Systems.

Jong, D. and Wang, T. S. (2009) *Student acceptance of Web-based learning system*, In Proceedings of the 2009 International Symposium on Web Information Systems and Applications (WISA'09), 533-553.

Jorgensen, D. and Cable, S. (2002) *Facing the challenges of e-government: A case study of the city of Corpus Christi, Texas*, SAM-Advanced Management Journal, 67(3), 15-21.

Lean, O.K., Zailani, S., Ramayah, T. and Fernando, Y. (2009) Factors influencing intention to use-government services among citizens in Malaysia. International Journal of Information Management, 29(6), 458-475.

Lee, V. and Lin, S. J. (2008) *Podcasting Acceptance on Campus: An extension of the UTAUT Model*. DIGIT 2008 Proceedings.

Lin, F., Fofanah, S. S. and Liang, D. (2011) *Assessing citizen adoption of e-Government initiatives in Gambia: A validation of the technology acceptance model in information systems success*, Government Information Quarterly, 28(2), 271-279.

Loo, W. H., Yeow, P. H. and Chong, S. C. (2011) Acceptability of Multipurpose Smart National Identity Card: An Empirical Study. Journal of Global Information Technology Management, 14(1), 35-58.

Loo, W. H., Paul H. P. and Yeow, P. H. P. and Chong, S. C. (2009) *User acceptance of Malaysian government multipurpose smartcard applications*, Government Information Quarterly, 26, 358-367.

Luo, X., Li, H., Zhang, J. and Shim, J.P. (2010) *Examining multi-dimensional trust and multi-faceted risk in initial acceptance of emerging technologies: An empirical study of mobile banking services*, Decision Support Systems, 49(2), 222-234.

Mayer, P., Volland, D., Thiesse, F. and Fleisch, E. (2011) *User Acceptance of'Smart Products': An Empirical Investigation*, Wirtschaftinformatik Proceedings 2011.

Moore, G. C. and Benbasat, I. (1991) *Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation*, Information Systems Research, 2(3), 192-222.

Nov, O. and Ye, C. (2009) *Resistance to change and the adoption of digital libraries: An integrative model*, Journal of the American Society for Information Science and Technology, 60(8), 1702-1708.

Nunnaly, J. (1978) Psychometric theory. New York: McGraw-Hill.

Rogers, E. M. (2003) Diffusion of innovations. New York: Free Press.

Sahu, G. P. and Gupta, M. P. (2007) *Users' Acceptance of E-Government: A study of Indian central Excise*, International Journal of Electronic Government Research, 3(3), 1-21.

Sambasivan, M., Wemyss, G. P. and Rose, R. C. (2010) *User acceptance of a G2B system: A case of electronic procurement system in Malaysia*, Internet Research, 20(2), 169-187.

Schaper, L. K. and Pervan, G. P. (2007) *ICT and OTs: A model of information and communication technology acceptance and utilisation by occupational therapists*, International journal of medical informatics, 76, S212-S221.

Schaupp, L. C., Carter, L. and McBride, M.E. (2010) *E-file adoption: A study of US taxpayers' intentions*, Computers in Human Behavior, 26(4), 636-644.

Straub, D. W., Hoffman, D. L., Weber, B. W., and Steinfield, C. (2002) *Measuring e-commerce in net-enabled organizations: An introduction to the special issue*, Information Systems Research, 13(2), 115-124.

Thompson, R. L., Higgins, C. A. and Howell, J. M. (1991) *Personal Computing: Toward a Conceptual Model of Utilization*. MIS Quarterly, 15(1), 124-143.

Triandis, H. C. (1977) Interpersonal behavior. Monterey, Calif: Brooks-Cole.

van Dijk, J. A. G. M., Peters, O. and Ebbers, W. (2008) *Explaining the acceptance and use of government Internet services: A multivariate analysis of 2006*

survey data in the Netherlands, Government Information Quarterly, 25, 379-399.

Venkatesh, V., Morris, M., Davis, G. and Davis, F. (2003) *User acceptance of information technology: Toward a unified view*, MIS Quarterly, 27(3), 425-478.

Wang, Y. S. and Shih, Y.W. (2009) *Why do people use information kiosks? A validation of the Unified Theory of Acceptance and Use of Technology*, Government Information Quarterly, 26(1), 158-165.

West, D. M. (2008) Improving technology utilization in electronic government around the world. Washington, D.C.: The Brookings Institution.

Wu, M. Y., Yu, P. Y. and Weng, Y. C. (2012) *A Study on User Behavior for I Pass by UTAUT: Using Taiwan's MRT as an Example*, Asia Pacific Management Review, 17(1), 92-111.

Yeow, P. H. and Loo, W. H. (2009) *Acceptability of ATM and Transit applications embedded in multipurpose smart identity card: An exploratory study in Malaysia*, International Journal of Electronic Government Research, 5(2), 37-56.

Zhao, L. (2010) *Study on Online Banking Adoption and Its Predictors*. Second International Conference on Multimedia and Information Technology, 1, 155-158.

Zhou, T., Lu, Y. and Wang, B. (2010) *Integrating TTF and UTAUT to explain mobile banking user adoption*, Computers in Human Behavior, 26(4), 760-767.

Zikmund, G. W. (1994) Business research methods (4th Ed.). New York, NY: The Dryden Press.