STRUCTURAL FACTORS LEADING TO NETWORK SUBSCRIPTION DECISIONS OF MOBILE PHONE USERS IN THE DAVAO REGION, PHILIPPINES

Eugene M. Bije
embije@addu.edu.ph

ABSTRACT

This study aimed at establishing network subscription decisions of mobile phone users from four cities in the Davao Region through individual beliefs (Effectiveness and Acceptance) on the mobile services offered by mobile networks. Descriptive and causal research designs were used in testing the research construct, patterned after the modified Technology Acceptance Model (TAM). Primary data were gathered through the survey method, and purposive sampling was employed via Cochran's sampling formula.Survey question-items were reviewed by research experts, and pre-tested using Cronbach's Alpha Index and Rasch Modeling's Person Separation Index (PSI). Descriptive statistics were utilized in establishing the respondents' profile; as well as responses on social influences, individual beliefs of mobile services, and network subscription decisions. Inferential statistics were also usedusing a two-stage approach: stepwise regression analysis; and structural equation modeling.Findings revealed that majority of the respondents are from Davao City and belonged to the 20-24-year-old age group. Most are Female; are Junior Professionals in the Services sector; had monthly individual incomes of at least ₱10,000.00; and, considered themselves as the Late Majority. Most have first used Smart Communications as their mobile network, and has been subscribed to a mobile network since 2001. Sun Cellular is the mobile network largely used by subscribers.Using stepwise regression analysis, social influence variables were deemed as highly significant in predicting individual behaviors. Individual behaviors of mobile services could significantly predict network subscription decisions. Effectiveness was found to be highly significant in predicting the Acceptance of mobile services.In the final respecification of the structural model, it generated satisfactory model fit results. Two social influence variables (Family Influence and Social Class) were revealed as not significant in influencing the Effectiveness construct, with Reference Groups exhibiting significant association. On its association to the Acceptance construct, all social influence constructs were regarded as insignificant. Individual beliefs were highly significant in affecting the network subscription decisions. The Effectiveness construct was found to significantly affect the Acceptance construct.

KEYWORDS: *Technology Acceptance Model; Structural Equation Modeling; Rasch Modeling; Network Subscription Decisions; Davao Region; Philippines.*

INTRODUCTION

Today, the presence of ever-changing information and communication technologies has provided individuals across the globe the opportunity to access valuable real-time information anytime and anyplace. As more hardware and software advancements were realized, the better the outcomes were generated much to the delight of the ever-growing consumer market. Mobile telecommunications technologies have emerged in the global scene as a facet of information technology that has the potential to greatly expand the range and number of alternatives for implementing voice and data communication infrastructures (Alexander, 2004).

The introduction of prepaid cards as one of the technological innovations in mobile communications, along with the gradual decline of prices of mobile phone units, have triggered a rapid spread of mobile phones across developing countries (Orozco et al, 2007) such as the Philippines. This development gave opportunities for mobile network carriers to provide

consumers with practical alternatives to access network infrastructures that were previously offered by fixed network operators, who had monopoly over the market. This further gave more business opportunities, particularly on the mobile telecommunications industry, as it was predicted by Rao and Troshani (2007) that mobile services constitute a massive source of potential revenue growth. Consequently, the competition among mobile networks have become largely based on the value-added content found on a variety of mobile services offered to the public, thereby reducing the need to remain close to a wired information system infrastructure.

However, there were instances wherein advanced mobile services were not widely accepted by consumers, despite the proliferation of third generation (3G) and dual-network mobile devices throughout the globe. Rao and Troshani added that the current penetration rate in many countries in Europe, North America, and Asia-Pacific, including Australia and New Zealand lagged forerunners such as Japan and South Korea. The Philippines, for instance, have not fully accepted the availability of advanced mobile services notwithstanding the tag "*text capital of the world*" given as a testament to the Filipinos' penchant for using Short Messaging Service (SMS) as the primary communication medium. Moreover, this has not prevented Filipinos from patronizing one or more mobile network carriers at the same time.

Given the recent trends in the mobile telecom industry, the researcher believed that the preferences and acceptance of mobile users on the mobile services provided and their network subscription decisions should be given due consideration since this could determine the type of mobile services to develop and be delivered by mobile network carriers for consumers' use. The researcher believed that there is a gap between preferred, accepted, and availed mobile services as the mobile users' behavioral intentions could be influenced by factors outside of the technology context such as social networks and pricing strategies of mobile network carriers. Further, the researcher believed that their network subscription decisions could be influenced by their psychological characteristics which would determine the acceptance of mobile services.

Statement of the Problem

The study was conducted to determine what affects the preferences of mobile phone users from maintaining single to multiple network subscription. Specifically, this study answered the following questions:

1. What is the demographic profile of mobile phone users in the Davao Region?
2. What are the social influences of mobile phone users on the usage of mobile services presently available with regards to the following:
   2.1. Family influence;
   2.2. Social class; and,
   2.3. Reference group?
3. What is the level of effectiveness of mobile services presently available as perceived by the mobile phone users?
4. What is the level of acceptance of mobile services presently available as perceived by the mobile phone users?
5. What are the network subscription decisions of the mobile phone users?
6. Do the social influences of mobile phone users significantly predict the perceived level of effectiveness of mobile services presently available?
7. Do the social influences of mobile phone users significantly predict the perceived level of acceptance as to the mobile services presently available?
8. Canthe mobile phone user's behavioral beliefstowards mobile network services significantly predict their network subscription decisions?

9. Does the mobile phone user's perceived level of effectiveness as to the mobile services presently available significantly predict their perceived level of acceptance on the mobile services?

FRAMEWORK

Theoretical Framework

This study was anchored on the Technology Acceptance Model (TAM) originally formulated by Davis (1986), which adopted Ajzen and Fishbein's (1980) Theory of Reasoned Action (TRA), in explaining the causal relationship between users' internal beliefs (usefulness and ease of use), attitude, intentions, and usage behavior (Davis et al., 1989). As exhibited in Figure 1, it is a behavioral model with six constructs describing the antecedents of the technology adoption (Davis, 1989). Attitudes and beliefs on a technology should be measured since it is possible that users might have positive beliefs on a certain technology without any inclinations toward its use.

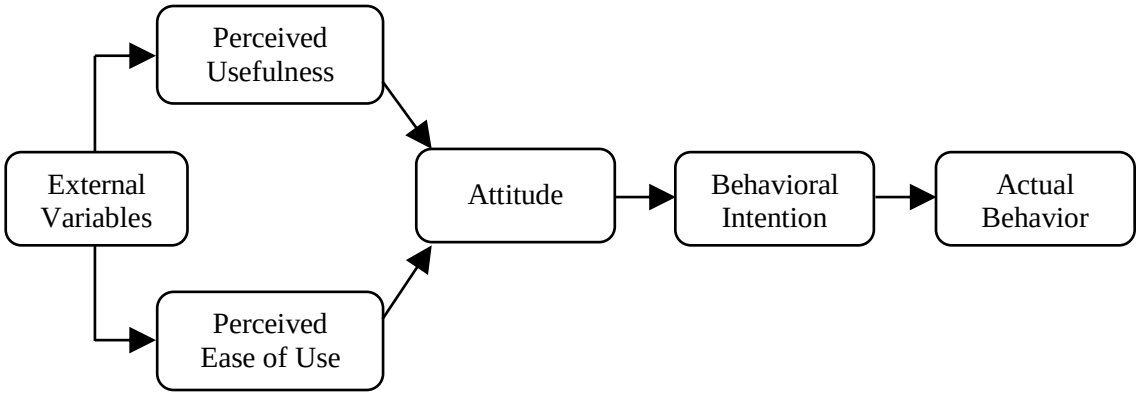

Figure 1.Technology Acceptance Model (TAM)
(Source: Davis et al., 1989)

TAM posits that two behavioral beliefs, perceived usefulness (PU) and perceived ease of use (PEOU), are two fundamental factors for predicting user acceptance and that the effect of external variables on intention are mediated by these beliefs (Davis, 1989; Davis et al., 1989). PU is defined as "*an individual's perception that using a new technology will enhance or improve her/his performance*" (Davis, 1993; 1989). Consequently, PEOU is defined by Davis as "*an individual's perception that using a new technology will be free from effort*". Simply put, a technology that is easy to use and is useful will lead to a positive attitude and intention towards using it (Rao &Troshani, 2007). These were then measured against behavioral intention (BI), in which TRA assumed to be closely linked to actual behavior (King & He, 2006).

Venkatesh and Davis (1996) introduced a modified version of TAM, as exhibited in Figure 2, removing the "*Attitude*" construct as a moderator between the two behavioral beliefs and behavioral intentions constructs as it does not fully mediate the relationship between both perception constructs and behavioral intent. The results of Brown et al. (2002) further strengthened this view. Subsequent TAM models were employed minus the "*Attitude*" construct.

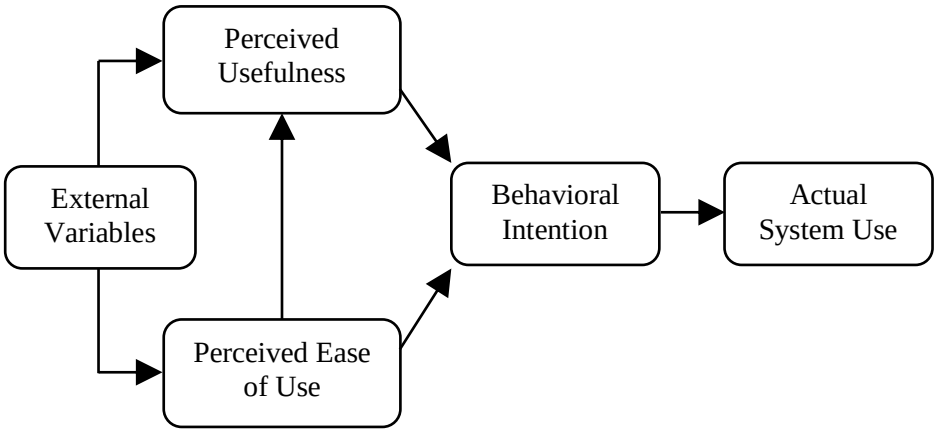

Figure 2.TAM Without the "*Attitude*" Construct
(Source: Venkatesh& Davis, 1996)

Another theory adopted for this study is the diffusion of innovations theory (DOI), a multidisciplinary theory by which an innovation is communicated through certain channels over a period among the members of a social system (Yi, et al., 2006; Rogers, 1995). Five innovation characteristics are identified as the characteristics that affect the adoption of innovation, which are: relative advantage, complexity, compatibility, trialability and observability.Presented in Figure 3 is the DOI model developed by Rogers (1995), which underscored the importance of innovation and the role of communication channels in helping the members of the social system in creating and sharing information in reaching a mutual understanding. Five adopter categories surfaced out of the five innovation characteristics mentioned by Rogers, namely: (1) innovators; (2) early adopters; (3) early majority; (4) late majority; and, (5) laggards. These categories help determine how an innovation will be adopted, in which the diffusion process allows for the flow of information through social networks thereby giving them a position of influence.

Preceding researches reflected the similarity between perceived usefulness and ease of use beliefs in TAM and the relative advantage and complexity constructs in diffusion theory (Venkatesh et al., 2003; Taylor & Todd, 1995; Moore &Benbasat, 1991). It was learned that the usefulness and ease of use constructs can be both considered as comparable, and together with compatibility, they have been discovered as the most constant determinants of adoption (Tornatzky& Klein, 1982).

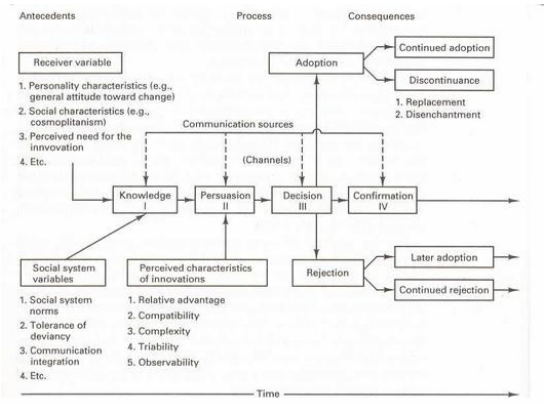

Figure 3.Diffusion of Innovation Model
(Source: Rogers, 1995)

The third theory adopted for this study referred to the factors that characterized the specific features of mobile services adoption: mobility (Han et al., 2004; Kakihara&Sørensen, 2001) and situational factors (Dabholkar&Bagozzi, 2002; Belk, 1975). Kakihara and Sørensen has expanded the concept of mobility into three dimensions of human interaction; spatial, temporal and contextual mobility. This depiction of benefits provided and realized by mobile technologies were further classified by Kleinrock's (1996) "*anytime and anywhere computing*" label and has outlined the two most common dimensions of mobility: independence of time and place. The effect of use situation has also been studied in consumer behavior literature as an important determinant for consumer choice behavior (Gehrt& Yan, 2004; Davis, 1989; Belk, 1975). Usage situations are expected to intervene with the benefits brought about by the mobility and the perceived usefulness of mobile services offered in the market. Therefore, it is possible that the usage situation intensifies the perceived usefulness and benefits of mobility.

The fourth theory comprised of a combination of social cognitive theory (individual level) and social influence theory (organizational level). Social cognitive theory is based on the premise that environmental controls, such as social pressures, unique situational characteristics, cognitive factors and other personal factors including personality, demographic and behavioral characteristics, are reciprocally determined (Kim et al, 2011). Davis (2006), as presented in Figure 4, highlighted the behavior (B), personal factors (P), and external environment (E) as key constructs surrounding social cognition and their psychosocial functioning that is explained through triadic reciprocal causation (Bandura, 1986). In this model, constructs are designed in a manner that underscored their two-way relationship as interacting determinants that influence each other (Wood & Bandura, 1988).

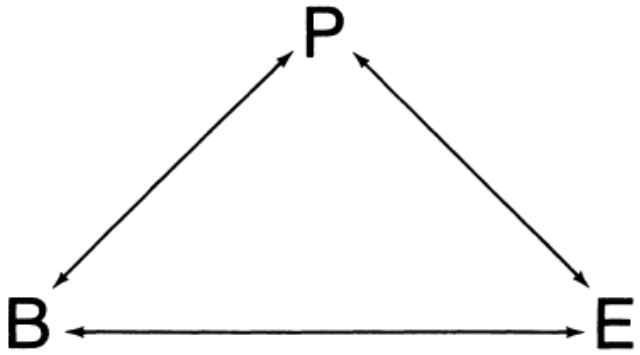

Figure 4.Social Cognitive Theory
(Source: Wood & Bandura, 1988)

Consequently, the social influence theory posits that information transmitted through an individual's social networks influences how they recognize a set of new information technology (LaRose et al, 2001). Out of the interaction process that directed the group members' behavior, subjective norms are formed focusing on two (2) individual attributes: (1) the belief that the referred person considers a particular behavior important; and, (2) the motivation of the decision maker to comply with the referred person's belief (Loraas& Wolfe, 2006).

The said theories were used to reinforce the conceptual framework developed and tested by the researcher for this study. It was believed that the outcomes pertaining to the mobile phone users' adoption of mobile network services in the Davao Region which, in reference to their network subscription decisions, could be best supported with theories that were deemed instrumental in the development and validation of the conceptual framework.

Figure 5 presented the conceptual framework developed for this study. The researcher believed that the perceived effectiveness and the perceived acceptance of mobile services, as individual perception constructs, could be affected by the social influences present within the environment. These social influences were believed to have come from the users' families, social class, and reference groups that they were associated with. It was then understood that individual responses of mobile phone users would eventually influence how their network subscription decisions were made.

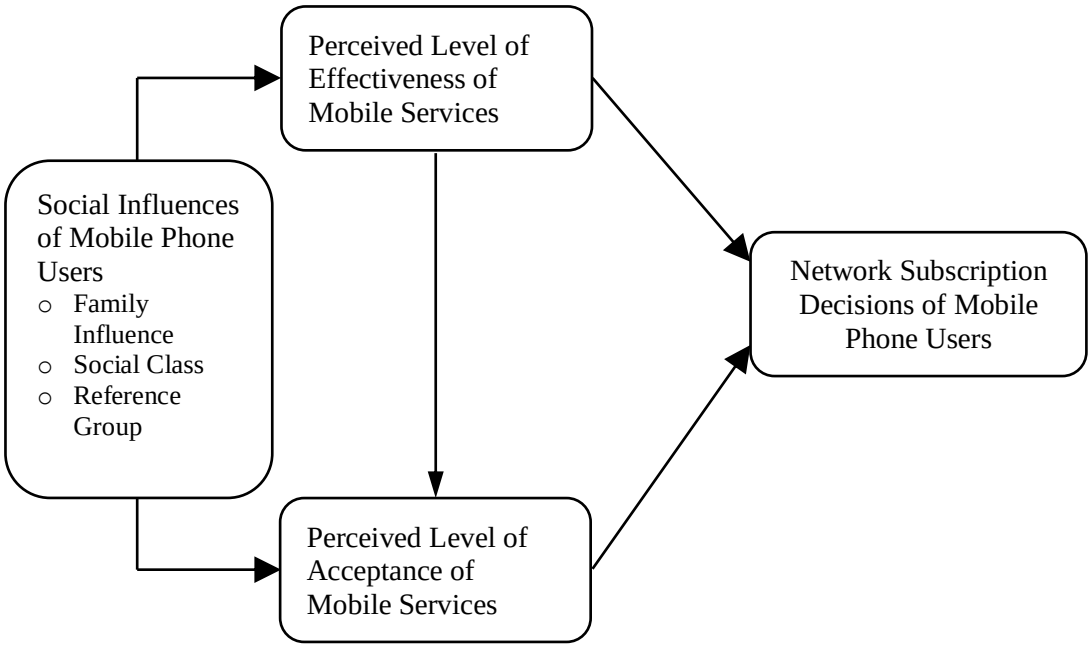

Figure 5.Conceptual Framework

METHODS

Research Design

This study used descriptive and causal method of research for describing first the attitudes, perceptions, characteristics, activities, and situations (Shao, 2002) that individuals encounter in the market and sought to satisfy the following criteria: association, direction of influence and isolation (Miles &Shevlin, 2001).

Research Respondents

The respondents of the study came from the selected cities in the Davao Region, notably Davao City, Tagum City, Digos City, and Mati City. The mobile phone users of the study comprised of three categories: students, junior and senior professionals. These respondents were invited to participate in a self-administered survey, where it relied on their ability to read and interpret a set of items at their most convenient time and unaided by the researcher (Andres, 2012).

The researcher used Cochran's (1963) sampling formula as basis in determining the number of sample size per consumer category per city in the region. This sampling formula was

employed mainly due to the difficulty attributed to establishing the population of prepaid and postpaid mobile phone users in the Davao Region.

Using the sampling formula, the sample size for mobile users in selected cities in the Davao Region this study was:

$$n = \frac{(1.96)^2(0.25)}{(0.05)^2} \qquad (1)$$

$$n = \frac{3.8416(0.25)}{0.0025} \qquad (2)$$

$$n = 384.16 \approx 385 \qquad (3)$$

An estimated non-response rate of 30% was considered in determining the sample size of mobile phone users. This rate was considered, as higher response rates guarantee survey results with greater accuracy (Rea & Parker, 1997; Aday, 1996; Babbie, 1990; Backstrom&Hursh, 1963). Specifically, a 70% response rate was believed to be reasonable in a survey of a general population that aims to describe knowledge or behaviors (Gordon, 2002). A respondent sample range from 385 to 550 mobile phone userswas asked to participate in this study.

$$n = \frac{385}{0.7} \qquad (1)$$

$$n = 550 \qquad (2)$$

However, only 450 mobile phone users out of the identified respondent sample range have participated in the survey. Purposive sampling was employed in obtaining information from the prepaid and postpaid mobile phone users.

Research Instrument

The researcher employed a five-stage, self-administered survey tool as the primary research instrument. Responses were solicited and measured using the 7-point Likert-type continuum numeric rating scale, which assumed that the strength or intensity of experience was linear, thereby making the assumption that attitudes or opinions could be measured (Bowling, 1997; Burns & Grove, 1997). The mean and weighted mean scores were interpreted using the 7-point rating scale, with response anchors derived from Vagias (2006).

While Likert-type rating scales were initially understood as ordinal in nature, it is believed that it can be treated as interval scales with the "*assumption of equal appearing intervals*" through the usage of mean score ranges (Janssens et al, 2008). This assumption was used in qualifying the notion that variables should be treated as interval-scaled, one of the postulations required in running regression analysis and structural equation modeling.

The measures that were administered to the mobile phone users were adopted from established items and scales (Kleijnen, et al, 2007; Cameron, 2006;Mahatanankoon et al, 2005; Rose, 2004; Lee, 2003; Glassberg, 2000). Some of the items were modified to become relevant to the present research agenda.Modifications on the items were made based on the results of the content validation from research experts; survey pre-testing; and, reliability analysis through Cronbach's Alpha (α) Index under the Classical Test Theory (CTT) and the Person Separation Index (PSI) under the Item Response Theory (IRT). Summary fit statistics were obtained using a computer software for the Cronbach's α score and for the PSI score under Rasch Modeling.

Cronbach's αis one of the known reliability indices used under CTT. Using the rules of thumb established by George and Mallery (2003), Cronbach's α coefficient was measured in this manner: "≥ 0.9 (Excellent); ≥ 0.8 (Good); ≥ 0.7 (Acceptable); ≥ 0.6 (Questionable); ≥ 0.5 (Poor); &, ≤ 0.5 (Unacceptable)".Although a high Cronbach's αvalue would show good internal consistency of the items, it does not attest to the unidimensionality of the scale and should not be used in drawing conclusions (Gliem&Gliem, 2003).

In addressing the limitation of Cronbach's α, the researcher found the IRTas a measurement paradigm through Rasch Modeling. While Rasch Modeling (1960/80) has been widely used in educational measurement, it has recently received interest specifically in the field of marketing (De Battisti et al, 2011; Hasford& Bradley, 2011; Kenett&Salini, 2011; Morales &Ladhari, 2011; De Battisti et al, 2010; Vrontis et al, 2009; Salzberger&Sinkovics, 2006; Ewing et al, 2005; Sinkovics et al, 2002; Soutar& Monroe, 2001; Salzberger, 2000; Salzberger et al, 1999). Rasch Modeling was designed to deal with the probabilistic relationship between the item's difficulty and the person's ability (Bond & Fox, 2001).Rasch's PSI was conceptually similar to Cronbach's α as a reliability estimate, in measuring the internal consistency (Peck, 2000) of the survey tool. The difference lies in the fact that the PSI determined the individuals' responses on items, whether they are consistent or erratic (Green &Frantom, 2002).

The Cronbach's α score on the 50 question items (Q1 to Q50) of the survey tool, was 0.93708 thereby exhibiting *Excellent* reliability. The PSI score was 0.92593, with no misfitting items, and its overall powers of the test-of-fit were deemed as *Excellent*. This means that all the fifty items are likely to measure a single dimension as intended by the construct theory, and that the items presented were understood by the respondents based on the results of the RaschModeling.

Summary of Test of Reliability Statistics on the SurveyQuestion-Items Using Cronbach's Alpha Index and the Person Separation Index (PSI).

Survey Question-Items	Classical Test Theory		Item Response Theory	
	Cronbach's α	Cronbach's α Based on Standardized Items	PSI	Power Analysis of Fit
Family Influence (Q1-Q5)	0.78580	0.78793	0.66592	Good
Social Class (Q6-Q10)	0.85220	0.85539	0.81357	Good
Reference Group (Q11-Q15)	0.71739	0.73142	0.59479	Good
Level of Effectiveness of Mobile Services as Perceived by Mobile Phone User (Q16-Q25)	0.90645	0.90553	0.88248	Excellent
Level of Acceptance of Mobile Services as Perceived by Mobile Phone User (Q26-Q35)	0.88418	0.88666	0.83838	Excellent
Network Subscription Decisions of Mobile Phone User (Q36-Q50)	0.76315	0.77216	0.78933	Good
Total	0.93708	0.94110	0.92593	Excellent

Statistical Tools

Descriptive statistics such as frequency counts and percentages were used in describing the mobile phone user's demographic characteristics. Mean and weighted mean scores were employed to depict the social influences of mobile phone users, their perceived level of effectiveness and acceptance of mobile services, and their network subscription decisions.

In ensuring maximal prediction and the linearity of the relationship, multiple regression analysis was used as it is prudent to examine all relationships to identify any departures from linearity that may affect the correlation (Hair et al, 2014; Miles &Shevlin, 2001). The stepwise method was specifically used wherein a removal test is conducted after each time a predictor variable is added to the equation, until a certain statistical measure using the remaining useful predictor variables is achieved in predicting the dependent variable (Brace et al, 2012).

Structural Equation Modeling (SEM) was utilized by the researcher to validate the research model in its ability to define multiple causal relationships simultaneously between variables of the study. This model was suggested to evaluate the overall and structural equation model fit of the research model, because hypothesized relationships can be fitted all at once and can be evaluated at the same time as they interact in a manner that is closer to mundane reality than the individual. In determining the goodness of fit, the RelativeNormed Chi-Square Ratio ($x2/df$), p Value for Test of Close Fit (pClose), Root Mean Square Error of Approximation (RMSEA), Root Mean Square Residual (RMR), Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), and Tucker-Lewis Index (TLI) were utilized in this study.

RESULTS AND DISCUSSION

Profile of Mobile Phone Users in the Davao Region

Table 1 depicts the demographic profile of mobile phone users in the Davao Region. About 23.10 percent of the respondents belonged to the *20-24 years old* age bracket, and that 60.20 percent were *Female* mobile phone users. Majority of the mobile phone users were *Junior Professionals*, from which 15.30 percent of these respondents belonged to the *Services* industry. Around 20.90 percent of the mobile phone users have monthly individual incomes of at least ₱10,000.00. With regards to the mobile phone users' proclivity towards the adoption of new technology, around 27.80 percent have considered themselves as part of the *Late Majority*. There were around 168 (37.30 percent) of mobile phone users who have first used *Smart Communications* as their mobile network carrier, and that the majority (39.60 percent) have first subscribed to their preferred mobile network carrier between the period of *2001 and 2005*. Majority of the mobile phone users in the region have used *Sun Cellular* (27.30 percent) as their primary mobile network carrier and are subscribed to *Smart Communications* (19.30 percent) as their secondary mobile network carrier. However, there were around 33.30 percent of the mobile phone users who were subscribed to only one mobile network carrier.

Table 1. Profile of Respondents in the Davao Region and Breakdown of Respondents per City

Respondent Category	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	f	%	*F*	%	*f*	%	*f*	%	*f*	%
Age Group										
19 years old & below	39	8.70	13	10.20	0	0.00	23	27.40	3	2.50
20-24 years old	104	23.10	48	37.50	10	8.60	13	15.50	33	27.00
25-29 years old	101	22.40	30	23.40	24	20.70	20	23.80	27	22.10
30-34 years old	72	16.00	18	14.10	27	23.30	13	15.50	14	11.50
35-39 years old	38	8.40	10	7.80	10	8.60	6	7.10	12	9.80
40-44 years old	27	6.00	5	3.90	6	5.20	4	4.80	12	9.80
45-49 years old	26	5.80	1	0.80	19	16.40	0	0.00	6	4.90
50-54 years old	20	4.40	1	0.80	6	5.20	4	4.80	9	7.40
55-59 years old	18	4.00	1	0.80	12	10.30	1	1.20	4	3.30
60 years old & above	5	1.10	1	0.80	2	1.70	0	0.00	2	1.60

Respondent Category	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	f	%	*F*	%	*f*	%	*f*	%	*f*	%
Sex										
Male	179	39.80	37	28.90	59	50.9	42	50	41	33.60
Female	271	60.20	91	71.10	57	49.1	42	50	81	66.40
Occupation (Multiple Responses)										
Student	200		72		60		46		22	
Junior Professional	226		73		42		40		71	
Senior Professional	88		10		39		7		32	
If "Student"										
Not Applicable	265	58.90	56	43.80	63	54.30	46	54.8	100	82.00
Professional College Student	57	12.70	18	14.10	13	11.20	19	22.6	7	5.70
Working College Student	29	6.40	1	0.80	14	12.10	6	7.1	8	6.60
Law Student	46	10.20	31	24.20	7	6.00	8	9.5	0	0.00
Graduate Student	53	11.80	22	17.20	19	16.40	5	6	7	5.70
If "Junior/Senior Professional"										
Not Applicable	102	22.70	44	34.40	29	25.00	13	15.50	16	13.10
Agriculture, Forestry & Fishing	22	4.90	1	0.80	4	3.40	10	11.90	7	5.70
Education	46	10.20	3	2.30	10	8.60	28	33.30	5	4.10
Finance & Real Estate	20	4.40	2	1.60	10	8.60	4	4.80	4	3.30
Banking	29	6.40	12	9.40	8	6.90	7	8.30	2	1.60
Legal	8	1.80	4	3.10	1	0.90	2	2.40	1	0.80
Manufacturing	13	2.90	6	4.70	3	2.60	3	3.60	1	0.80
Wholesale Trade	4	0.90	0	0.00	3	2.60	1	1.20	0	0.00
Retail Trade	14	3.10	2	1.60	8	6.90	2	2.40	2	1.60
Healthcare	34	7.60	1	0.80	14	12.10	1	1.20	18	14.80
Communications	24	5.30	12	9.40	9	7.80	1	1.20	2	1.60
Services	69	15.30	18	14.10	12	10.30	8	9.50	31	25.40
Others	65	14.40	23	18.00	5	4.30	4	4.80	33	27.00
Monthly Individual Income										
Not Applicable	75	16.70	32	25.00	40	34.50	3	3.60	0	0.00
Less than ₱5,000.00	94	20.90	4	3.10	11	9.50	25	29.80	54	44.30
₱5,000.00-₱10,000.00	94	20.90	16	12.50	20	17.20	26	31.00	32	26.20
₱10,001.00-₱15,000.00	77	17.10	28	21.90	20	17.20	9	10.70	54	44.30
₱15,001.00-₱20,000.00	38	8.40	16	12.50	7	6.00	10	11.90	32	26.20
₱20,001.00-₱25,000.00	27	6.00	12	9.40	5	4.30	5	6.00	54	44.30
₱25,001-₱30,000.00	10	2.20	5	3.90	1	0.90	1	1.20	32	26.20
₱30,001.00-₱35,000.00	5	1.10	0	0.00	3	2.60	2	2.40	54	44.30
₱35,000.00 or more	30	6.70	15	11.70	9	7.80	3	3.60	32	26.20
Adoption of New Technology										
Innovator	47	10.40	14	10.90	9	7.80	10	11.90	14	11.50
Early Adopter	75	16.70	18	14.10	16	13.80	18	21.40	23	18.90
Early Majority	108	24.00	22	17.20	57	49.10	9	10.70	19	15.60
Late Majority	125	27.80	54	42.20	6	5.20	20	23.80	42	34.40
Laggard	95	21.10	20	15.60	25	21.60	26	31.00	24	19.70
Mobile Network Carrier First Used										
Globe Telecom	120	26.70	41	32.00	29	24.17	18	15.00	35	29.17
Smart Communications	168	37.30	51	39.80	21	12.50	38	22.62	52	30.09
Sun Cellular	60	13.30	15	11.70	37	61.67	9	15.00	2	3.33
Touch Mobile	17	3.80	4	3.10	9	52.94	0	0.00	4	23.53
Talk 'N Text	83	18.40	13	13.30	20	24.10	18	21.69	28	33.73
Red Mobile	2	0.40	0	0.00	0	0.00	1	50.00	1	50.00
Year Mobile Network Carrier First Used										
2010-2011	58	12.90	14	10.90	31	53.45	19	32.76	10	17.24
2006-2009	113	25.10	36	28.10	8	7.07	30	26.55	33	29.20
2001-2005	178	39.60	53	41.40	46	25.84	22	12.36	48	26.97
1996-2000	101	22.40	25	19.50	31	30.69	13	12.87	31	30.69
Primary Mobile Network Carrier in Use										
Globe Telecom	99	22.00	25	19.50	19	16.40	13	15.50	32	26.20
Smart Communications	118	26.20	24	18.80	8	6.90	27	32.10	44	36.10

Respondent Category	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	f	%	*F*	%	*f*	%	*f*	%	*f*	%
Sun Cellular	123	27.30	63	49.20	17	14.70	15	17.90	3	2.50
Touch Mobile	13	2.90	0	0.00	1	0.90	0	0.00	6	4.90
Talk 'N Text	95	21.10	16	12.50	8	6.90	24	28.60	36	29.50
Red Mobile	2	0.40	0	0.00	0	0.00	1	1.20	1	0.80
Type of Subscription (Primary Mobile Network Carrier)										
Prepaid	332	73.80	79	61.70	81	69.80	72	85.70	100	82.00
Postpaid	118	26.20	49	38.30	35	30.20	12	14.30	22	18.00
Secondary Mobile Network Carrier in Use										
Single Network Subscription Only	150	33.30	37	28.90	77	66.40	5	6.00	35	28.70
Globe Telecom	66	14.70	21	16.40	5	4.30	15	17.90	23	18.90
Smart Communications	87	19.30	33	25.80	6	5.20	29	34.50	19	15.60
Sun Cellular	73	16.20	29	22.70	19	16.40	16	19.00	8	6.60
Touch Mobile	32	7.10	3	2.30	4	3.40	1	1.20	24	19.70
Talk 'N Text	41	9.10	5	3.90	5	4.30	17	20.20	13	10.70
Red Mobile	1	0.20	0	0.00	0	0.00	1	1.20	0	0.00
Type of Subscription(Secondary Mobile Network Carrier)										
Single Network Subscription Only	150	33.30	37	28.90	77	66.40	5	6.00	35	28.70
Prepaid	257	57.10	70	54.70	37	31.90	66	78.60	80	65.60
Postpaid	43	9.60	21	16.40	2	1.70	13	15.50	7	5.70

Social Influences on the Usage of Mobile Network Services by Mobile Phone Users in the Davao Region

Table 2 presents the summary of social influences on the respondents regarding the use of mobile services offered by mobile network carriers. It was learned that the respondents in the Davao Region have generally *Agreed* ($\bar{x}$ = 5.30) to the role that social influences play in dictating their choices of mobile network carrier.Specifically, respondents coming from Digos City ($\bar{x}$ = 5.68) and Mati City ($\bar{x}$ = 5.33) have *Agreed* to the effect that social influences play on their choices. Subsequently, respondents from Davao City ($\bar{x}$ = 5.11) and Tagum City ($\bar{x}$ = 5.22) have *Somewhat Agreed* on the role of social influences in their decision. Family influences appeared to play an important role in affecting their choices in the Davao Region ($\bar{x}$ = 5.52) as well as in 3 major cities (Davao City: $\bar{x}$ = 5.48; Tagum City: $\bar{x}$ = 5.32; Digos City: $\bar{x}$ = 5.80), apart from Mati City ($\bar{x}$ = 5.58) where reference groups are deemed more influential.

Table 2. Summary of Social Influences on the Usage of Mobile Network Services by Mobile Phone Users

Sub-Category	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
Family Influences	5.52	A	5.48	A	5.32	A	5.80	A	5.57	A
Social Class	4.94	SA	4.48	SA	5.10	SA	5.57	A	4.85	SA
Reference Groups	5.45	A	5.36	A	5.25	SA	5.67	A	5.58	A
Total	5.30	A	5.11	SA	5.22	SA	5.68	A	5.33	A

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Table 3 shows the responses on the usage of mobile services regarding family influences. Item Number Q2 ("*Connected to the same network carrier allows me to avail the said network's unlimited services when contacting my family members*") has consistently received the highest mean rating among respondents in the 4 cities (Davao City: $\bar{x}$ = 6.20; Tagum City: $\bar{x}$ = 5.62; Digos City: $\bar{x}$ =

5.99; Mati City: $\bar{x}$ = 5.96) and in the Davao Region ($\bar{x}$ = 5.94). This showed the role of families in determining the preferred mobile network carrier. As the society's basic building block, its information influence over the purchasing decisions of 18-35 year olds in Spain is considered as a vital element in predicting consumer behavior (Gil et al, 2007). Moreover, marketing communication campaigns that either underscore the family experience of the brand or highlight the parental figure as an experienced consumer (Moore et al, 2002) would prove effective for mobile network carriers in increasing brand awareness.

Table 3. Social Influences on the Usage of Mobile Network Services by Mobile Phone Users through Family Influence

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
Connected to the same network carrier allows me to avail the said network's unlimited services when contacting my family members.	5.79	A	6.12	A	5.51	A	5.75	A	5.75	A
Connected to the same network carrier allows me to easily contact my family members.	5.94	A	6.20	StrA	5.62	A	5.99	A	5.96	A
Connected to the same network carrier allows me to send load credits to my family members with relative ease.	5.50	A	5.27	SA	5.26	SA	5.88	A	5.70	A
Connected to the same network's program allows me to contact family members who happen to be outside of the country & allows me to avail the network carrier's international package.	5.27	SA	5.09	SA	5.05	SA	5.73	A	5.35	A
Using the network's family package program prompted me to switch to the chosen network carrier.	5.10	SA	4.73	SA	5.15	SA	5.64	A	5.07	SA
Total	5.52	A	5.48	A	5.32	A	5.80	A	5.57	A

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Table 4 depicts the outcomes of the usage of mobile services that are presently available as influenced by the social class. In general, the respondents in the Davao Region have*SomewhatAgreed* on the impact of the social class as to the usage of mobile services. Item Number Q6 ("*People who are important to me think that I should use the mobile network carrier*") garnered the highest mean score ($\bar{x}$ = 5.33) in the region.

Item Number Q6 garnered the highest mean score for the 3 cities (Davao City: $\bar{x}$ = 5.30; Tagum City: $\bar{x}$ = 5.33; Mati City: $\bar{x}$ = 5.19) in the Davao Region, while Item Number Q7 ("*I use the mobile network carrier because of the proportion of co-workers who use the same carrier*") generated the highest mean score in Digos City ($\bar{x}$ = 5.08). The results revealed that mobile phone users are more inclined to adopt mobile network carriers that are largely used by their close associates in their workplaces. This was confirmed by Jarvenpaa et al (2003), who view mobile services as an opportunity to

maintain access to relevant services and staying socially connected even when they are always on the move. This allows mobile phone users in expanding mobile communications to social and business venues for human interactions (Kim et al, 2011).

Table 4. Social Influences on the Usage of Mobile Network Services by Mobile Phone Users through Social Class

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
People who are important to me think that I should use the mobile network carrier.	5.33	A	5.30	A	5.33	A	5.58	A	5.19	SA
I use the mobile network carrier because of the proportion of co-workers who use the same carrier	5.20	SA	4.95	SA	5.26	SA	5.67	A	5.08	SA
People who influenced my behavior think that I should use the mobile network carrier.	4.96	SA	4.65	SA	5.13	SA	5.63	A	4.68	SA
People in my organization/community who use my mobile network carrier have more prestige than those who do not.	4.70	SA	3.95	NAD	4.94	SA	5.52	A	4.68	SA
Having the mobile network carrier is a status symbol in my organization/community.	4.53	SA	3.55	NAD	4.85	SA	5.44	A	4.62	SA
Total	4.94	SA	4.48	SA	5.10	SA	5.57	A	4.85	SA

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Table 5 shows the results of the usage of mobile services as influenced by reference group. The respondents in the Davao Region ($\bar{x}$ = 5.45), as well as respondents coming from the 3 cities (Davao City: $\bar{x}$ = 5.36, Digos City: $\bar{x}$ = 5.67; Mati City: $\bar{x}$ = 5.58), have *Agreed* on the role of the reference group in influencing their usage of mobile services that are presently available.Item Number Q12 ("*Connected to the same network allows me to avail the said network's unlimited services when contacting my friends & associates"*) have consistently registered the highest mean rating in the 4 cities (Davao City: $\bar{x}$ = 6.11; Tagum City: $\bar{x}$ = 5.53; Digos City: $\bar{x}$ = 5.76; Mati City: $\bar{x}$ = 5.87) and in the Davao Region ($\bar{x}$ = 5.83). These are consistent with the findings of Qin et al (2011), which underscored the significance of social influence in affecting the perceived usefulness and usage intentions on the adoption of online social networks.

Kim et al (2011) also added that peer influenceplays a key role in shaping the subjective norms leading to the formation of intention to use the new mobile service. Individuals tend to interact with their peers, which varies depending on the level of significance internalized by another's beliefs or similarities of beliefs with others (Lewis et al, 2003), and observe their use experiences for their internal evaluation and adoption decisions.

Table 5. Social Influences on the Usage of Mobile Network Services by Mobile Phone Users through Reference Group

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
Connected to the same network allows me to avail the said network's unlimited services when contacting my friends & associates.	5.75	A	6.05	A	5.39	A	5.74	A	5.79	A
Connected to the same network allows me to easily contact my friends & associates.	5.83	A	6.11	A	5.53	A	5.76	A	5.87	A
Using the network's package program prompted me to switch to the network preferred by my friends & associates.	5.28	SA	4.99	SA	5.27	SA	5.62	A	5.36	A
Connected to the same network allows me to send load credits to my friends & associates with relative ease.	5.20	SA	4.76	SA	5.13	SA	5.56	A	5.49	A
Connected to the same program allows me to contact friends & associates who happen to be outside of the country & allows me to avail the network's international package.	5.18	SA	4.87	SA	4.95	SA	5.67	A	5.39	A
Total	5.45	A	5.36	A	5.25	SA	5.67	A	5.58	A

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Level of Effectiveness of Mobile Network Services Presently Available as Perceived by Mobile Phone Users

Table 6 exhibits the respondent outcomes on the level of effectiveness of the mobile services that are presently available. It was learned that, both on the regional level and on the city level, respondents have *Agreed* on the perceived effectiveness of the mobile services that are presently available.

Item Number Q16 ("*Using the mobile network's services allows me to establish contacts with my family & friends more quickly*") garnered the highest mean rating from respondents in Davao Region ($\bar{x}$ = 5.86) and specifically coming from the three cities in the region (Davao City: $\bar{x}$ = 6.13; Tagum City: $\bar{x}$ = 5.52; Mati City: $\bar{x}$ = 5.94). While in Digos City, the Item Number Q24 ("*Using the mobile network's services improves my job performance*") received the highest mean score ($\bar{x}$ = 5.98). The results are consistent with the TAM that was first postulated by Davis (1986) and reinforced by succeeding studies (Ghazizadeh, 2012; Abu Ghannam, 2011; Qin et al, 2011; Venkatesh et al, 2003; Taylor & Todd, 1995; Davis, 1993, 1989; Davis et al, 1989), thereby underscoring the usefulness of mobile network's services in attaining a specific objective. The usefulness of new services, which require considerable peer interaction, is influenced by peers who also use them whether for social or business use (Dickinger et al, 2008).

Table 6. Level of Effectiveness of Mobile Network Services Presently Available as Perceived by Mobile Phone Users

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
Using the mobile network's services allows me to establish contacts with my family & friends more quickly.	5.86	A	6.13	A	5.52	A	5.80	A	5.94	A
I find the mobile network's services useful in my leisure time.	5.70	A	5.77	A	5.46	A	5.89	A	5.70	A
Using the mobile network's services in my job allows me to accomplish tasks more quickly.	5.43	A	5.33	A	5.27	SA	5.75	A	5.46	A
I use the mobile network's services in accomplishing some of my daily tasks more quickly.	5.43	A	5.30	A	5.38	A	5.86	A	5.31	A
I find the mobile network's services useful in my job.	5.44	A	5.41	A	5.21	SA	5.82	A	5.42	A
Using the mobile network's services helps me keep updated with information.	5.54	A	5.45	A	5.42	A	5.87	A	5.52	A
Using the mobile network's services makes it easier to do my job.	5.34	A	5.27	SA	5.22	SA	5.80	A	5.22	SA
Using the mobile network's services allows me to access the Internet more quickly.	5.42	A	5.27	SA	5.30	A	5.80	A	5.43	A
Using the mobile network's services improves my job performance.	5.24	SA	4.84	SA	5.24	SA	5.98	A	5.13	SA
Using the mobile network's services enhances my effectiveness on the job.	5.26	SA	4.94	SA	5.27	SA	5.81	A	5.21	SA
Total	5.46	A	5.37	A	5.33	A	5.84	A	5.44	A

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Level of Acceptance of Mobile Network Services Presently Available as Perceived by Mobile Phone Users

The respondent outcomes on the level of acceptance of mobile network services that are presently available are reflected in Table 7. Overall, the respondents have *Agreed* ($\bar{x}$ = 5.42) in the region and that the respondents from the 3 cities*Agreed* on the acceptability of the mobile services save for the respondents from Tagum City who*Somewhat Agreed*($\bar{x}$ = 5.16)only to its acceptability. This is consistent with Davis' (1989) belief that the easiness of using a mobile network carrier's services represents an intrinsically motivating aspect between human and computer interaction, which can have a direct effect on how these services will be adopted.

The results varied across the 4 cities in the region, as both Davao City ($\bar{x}$ = 5.83) and Mati City ($\bar{x}$ = 5.64) gave the highest mean scores on Item Number Q26 ("*Learning the mobile network's services is easy for me*"). Respondents from Tagum City gave the highest mean rating ($\bar{x}$ = 5.26) on Item Numbers Q28 and Q32 ("*It is easy for me to become skillful at using the mobile network's services*").

Lastly, respondents from Digos City gave the highest mean score ($\bar{x}$ = 5.77) on Item Number Q29 ("*The functions provided by the mobile network's services are easy to remember*"). This shows that the adoption and usage of a mobile network carrier hinges on the relative easiness of learning and employing its services whether used by experienced or neophyte mobile phone users (Zarmpou et al, 2012; Amin, 2008; Wang et al, 2003).

Table 7. Level of Acceptance of Mobile Network Services Presently Available as Perceived by Mobile Phone Users

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
Learning the mobile network's services is easy for me.	5.60	A	5.83	A	5.17	SA	5.76	A	5.64	A
I find it easy to get the mobile network's services to do what I want it to do.	5.48	A	5.56	A	5.22	SA	5.63	A	5.53	A
In general, I find the mobile network's services to be easy to use & access.	5.60	A	5.80	A	5.26	SA	5.74	A	5.62	A
The functions provided by the mobile network's services are easy to remember.	5.52	A	5.63	A	5.17	SA	5.77	A	5.54	A
I find the mobile network's services to be flexible in interacting with other mobile networks.	5.44	A	5.55	A	5.21	SA	5.62	A	5.42	A
My interaction with the mobile network's services is clear & understandable.	5.47	A	5.57	A	5.21	SA	5.73	A	5.43	A
It is easy for me to become skillful at using the mobile network's services.	5.45	A	5.50	A	5.26	SA	5.67	A	5.43	A
I find the system response time of the mobile network's services to be faster.	5.36	A	5.35	A	5.18	SA	5.61	A	5.38	A
I find the mobile network's services to be secure with regards to protecting my personal information when accessing the Internet.	5.26	SA	5.15	SA	5.16	SA	5.52	A	5.30	A
I find the mobile network's services to be secure with regards to securing my load credits.	5.03	SA	4.95	SA	4.76	SA	5.40	A	5.11	SA
Total	5.42	A	5.49	A	5.16	SA	5.65	A	5.44	A

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Network Subscription Decisions of Mobile Phone Users from the 4 Selected Cities in the Davao Region

Table 8 exhibits the results on the network subscription decisions of mobile phone users. In general, the respondents in the Davao Region have*Somewhat Agreed*($\bar{x}$ = 5.05)to the manner by which they come up with network subscription decisions in reference to the available mobile

services. Item Number Q36 ("*I am satisfied with my decision to use my mobile service carrier*") garnered the highest mean rating ($\bar{x}$ = 5.58) among respondents in the Davao Region.

Item Number Q37 ("*I think I did the right thing by using mobile services from my mobile service carrier*") received the highest mean score in Davao City ($\bar{x}$ = 6.02). Also, the Item Number Q36 generated the highest mean score in Tagum City ($\bar{x}$ = 5.08) and Mati City ($\bar{x}$ = 5.58). Further, the Item Number Q38 ("*My choice to use my mobile service carrier was a wise one*") generated the highest mean score in Digos City ($\bar{x}$ = 5.74). This is consistent with the findings of Choudhury and Karahanna (2008) wherein a positive decision is made when there is perceived relative advantage on using a particular innovation. Knowledge of the benefits that can be derived out of the mobile services is also essential in forming stable behavioral intentions (Karahanna et al, 1999; Ajzen, 1991), leading towards the formulation of definite subscription decisions.

Table 8. Network Subscription Decisions of Mobile Phone Users from the 4 Selected Cities in the Davao Region

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
I am satisfied with my decision to use my mobile service carrier.	5.58	A	6.02	A	5.08	SA	5.58	A	5.58	A
I think I did the right thing by using mobile services from my mobile service carrier.	5.56	A	6.02	A	5.03	SA	5.61	A	5.56	A
My choice to use my mobile service carrier was a wise one.	5.54	A	5.94	A	5.07	SA	5.74	A	5.45	A
Using a mobile phone with dual SIM capability allows me to use more than one mobile service carrier.	5.24	SA	5.43	A	4.67	SA	5.62	A	5.31	A
Using a mobile phone with no dual SIM capability prevents me from using more than one mobile service carrier.	5.05	SA	4.92	SA	4.68	SA	5.60	A	5.16	SA
In general, the costs in time, money, & effort in using more than one mobile service carrier would be high.	5.24	SA	5.21	SA	4.96	SA	5.58	A	5.30	A
As a whole, I would spend a lot & lose a lot if I use more than one mobile service carrier.	5.08	SA	4.92	SA	4.97	SA	5.50	A	5.06	SA
I think I did the right thing by subscribing to more than one mobile service carrier.	4.98	SA	4.61	SA	4.78	SA	5.49	A	5.20	SA
Generally, the costs in time, money, effort, & grief to switch from the previous mobile service carrier would be high.	5.01	SA	4.76	SA	4.89	SA	5.60	A	4.99	SA
Considering everything, the costs to stop doing business with my mobile service carrier & starting up with a new carrier would be high.	4.97	SA	4.68	SA	4.91	SA	5.38	A	5.06	SA
Overall, I would spend a lot & lose a lot if I switched from	5.07	SA	4.80	SA	4.97	SA	5.67	A	5.04	SA

Question-Item	Davao Region		Davao City		Tagum City		Digos City		Mati City	
	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor	$\bar{x}$	Response Anchor
one mobile service carrier to another.										
I am satisfied with using more than one mobile service carrier.	5.13	SA	4.89	SA	4.82	SA	5.69	A	5.28	SA
I am satisfied with using only one mobile service carrier.	5.12	SA	5.23	SA	4.80	SA	5.57	A	5.00	SA
I feel badly regarding my decision to choose my mobile service carrier for mobile services.	4.11	NAD	3.34	SD	4.15	NAD	5.27	SA	4.09	NAD
I am unhappy that I use the mobile services from my mobile service carrier.	4.06	NAD	3.05	SD	4.21	NAD	5.30	A	4.13	NAD
Total	5.05	SA	4.92	SA	4.80	SA	5.55	A	5.08	SA

Legend: Strongly Disagree (StrD); Disagree (D); Somewhat Disagree (SD); Neither Agree or Disagree (NAD); Somewhat Agree (SA); Agree (A); Strongly Agree (StrA)

Test of Significant Predictability Between the Social Influences of Mobile Phone Users in the Davao Region and their Perceived Level of Effectiveness on the Mobile Network Services

In determining the stepwise regression model fit between the social influences of mobile phone users and their perceived level of effectiveness on the mobile network services that are presently available, Table 9 presents the model diagnostic results for the mobile phone users from the selected cities in the Davao Region.

Table 9.Model Summary[d] of Stepwise Fit Regarding the Social Influences of Mobile Phone Users in the Davao Region and their Perceived Level of Effectiveness on the Mobile Network Services

Model	Factors	β	t	Sig.	Variance Inflation Factor
1	(Constant)	1.528	8.080**	0.000	
	Reference Groups	0.722	21.202**	0.000	1.000
R^a = 0.708; R^2 = 0.501; $\bar{R}$ = 0.500; F = 449.505**; Sig.= 0.000[a]					
2	(Constant)	1.141	5.989**	0.000	
	Reference Groups	0.463	8.984**	0.000	2.498
	Family Influences	0.326	6.500**	0.000	2.498
R^b= 0.738; R^2 = 0.544; $\bar{R}$ = 0.542; F = 266.576**; Sig.= 0.000[b]					
3	(Constant)	0.999	5.289**	0.000	
	Reference Groups	0.386	7.265**	0.000	2.772
	Family Influences	0.285	5.711**	0.000	2.581
	Social Class	0.160	4.631**	0.000	1.590
R^c= 0.752; R^2 = 0.565; $\bar{R}$ = 0.562; F = 192.994**; Sig.= 0.000[c]; DW = 1.773					

a. Predictors: (Constant), Reference Group
b. Predictors: (Constant), Reference Group, Family Influence
c. Predictors: (Constant), Reference Group, Family Influence, Social Class
d. Dependent Variable: Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users
**. Significant at 0.01 level of significance.

The prediction expression generated for this model is presented below:

Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users = *0.999 + Reference Groups*0.386 + Family Influences*0.285 + Social Class*0.160*

= *0.999 + (5.45*0.386) + (5.52*0.285) + (4.94*0.160)*

= ***5.47 (Agree)***

Test of Significant Predictability Between the Social Influences of Mobile Phone Users in the Davao Region and their Perceived Level of Acceptance on the Mobile Network Services

Table 10 reveals the best model results for mobile phone users in the selected cities in the Davao Region. In comparing their social influences with their level of acceptance of mobile network services that are presently available, model diagnostic results yielded the following:

Table 10. Model Summary[d] of Stepwise Fit Regarding the Social Influences of Mobile Phone Users in the Davao Region and their Perceived Level of Acceptance on the Mobile Network Services

Model	Factors	β	t	Sig.	Variance Inflation Factor
1	(Constant)	1.906	9.723**	0.000	
	Reference Groups	0.645	18.264**	0.000	1.000
R^a = 0.653; R^2 = 0.427; $\bar{R}^2$ = 0.426; F = 333.566**; Sig.= 0.000[a]					
2	(Constant)	1.529	7.699**	0.000	
	Reference Groups	0.392	7.301**	0.000	2.498
	Family Influences	0.318	6.082**	0.000	2.498
R^b= 0.686; R^2 = 0.471; $\bar{R}^2$ = 0.468; F = 198.676**; Sig.= 0.000[b]					
3	(Constant)	1.390	7.042**	0.000	
	Reference Groups	0.317	5.711**	0.000	2.772
	Family Influences	0.278	5.329**	0.000	2.581
	Social Class	0.156	4.308**	0.000	1.590
R^c= 0.701; R^2 = 0.492; $\bar{R}^2$ = 0.488; F = 143.839**; Sig.= 0.000[c]; DW = 2.000					

a. Predictors: (Constant), Reference Group
b. Predictors: (Constant), Reference Group, Family Influence
c. Predictors: (Constant), Reference Group, Family Influence, Social Class
d. Dependent Variable: Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users
**. Significant at 0.01 level of significance.

The prediction expression generated for this model is presented below:

Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users = *1.390 + Reference Groups*0.317 + Family Influences*0.278 + Social Class*0.156*

= *1.390 + (5.45*0.317) + (5.52*0.278) + (4.94*0.156)*

= ***5.42 (Agree)***

Test of Significant Predictability Between the Mobile Phone User's Behavioral Beliefs Towards Mobile Network Services and their Network Subscription Decisions

Exhibited in Table 11 is the best model diagnostic result for network subscription decisions of respondents, when compared to their perceived level of effectiveness of mobile services.

Table 11. Model Summary[c] of Stepwise Fit Regarding the Mobile Phone User's Behavioral BeliefsTowards Mobile Network Services and their Network Subscription Decisions

Model	Factors	β	t	Sig.	Variance Inflation Factor
1	(Constant)	1.765	11.096	0.000	
	Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users	0.606	21.040**	0.000	1.000
R^a = 0.705; R^2 = 0.497; $\bar{R}$ = 0.496; F = 442.665**; Sig.= 0.000[a]					
2	(Constant)	1.349	8.486	0.000	
	Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users	0.389	9.949**	0.000	2.081
	Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users	0.292	7.713**	0.000	2.081
R^b= 0.746; R^2 = 0.556; $\bar{R}$ = 0.554; F = 279.968**; Sig.= 0.000[b]; DW = 1.677					

a. Predictors: (Constant), Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users
b. Predictors: (Constant), Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users, Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users
c. Dependent Variable: Network Subscription Decisions of Mobile Phone Users
**. Significant at 0.01 level of significance.

The prediction expression generated for this model is presented below:

Network Subscription Decisions of Mobile Phone Users = *1.349 + Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users *0.389 + Level of Effectiveness of Mobile Services *0.292*

= *1.390 + (5.42*0.389)+(5.46*0.292)*

= ***5.05 (Somewhat Agree)***

Test of Significant Predictability Between the Level of Effectiveness of Mobile Network Services as Perceived by Mobile Phone Users in the Davao Region and the Level of Acceptance of Mobile Network Services

Depicted in Table 12 is the best model diagnostic result for the level of acceptance of mobile services of respondents, when compared to their perceived level of effectiveness.

Table 12. Model Summary[b] of Stepwise Fit between the Mobile Phone User's Perceived Level of Effectiveness on the Mobile Network Services and their Perceived Level of Acceptance

Model	Factor	β	t	Sig.	Variance Inflation Factor
1	(Constant)	1.611	9.130	0.000	
	Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users	0.697	22.006**	0.000	1.000

R^a= 0.721; R^2 = 0.519; R^2 = 0.518; F = 484.270**; Sig.= 0.000[a]; DW = 1.866

a. Dependent Variable: Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users
**. Significant at 0.01 level of significance.

Level of Acceptance of Mobile Services as Perceived by Mobile Phone Users = *1.611 + Level of Effectiveness of Mobile Services as Perceived by Mobile Phone Users*0.697*

= *1.611 + (5.46*0.697)*

= ***5.42 (Agree)***

In sum, the regression models presented in Table 13 generated responses consistent to the theories and empirical studies conducted pertaining to social influences (Khan &Allil, 2010; Zhang & Mao, 2008; Ma, 2007; Muk, 2007; Bauer et al, 2005; Solomon, 2004; Teo&Pok, 2003; Venkatesh et al, 2003; Bandura, 2001; Blackwell et al, 2001; Sweeney &Soutar, 2001; Pavlou& Stewart, 2000; Venkatesh, 2000), effectiveness (Mafé et al, 2009; Cheong & Park, 2005; Chiu et al, 2005; Pikkarainen et al, 2004; Venkatesh et al, 2000) and acceptance (Suki, 2011; Haque et al, 2010; Amin, 2008; Wang et al, 2003; Sun & Zhang, 2006; Davis, 1989) of mobile services, and network subscription behavior (Noor et al, 2013; Grzybowski& Pereira, 2011; Amante&Vareda, 2010; Beneke et al, 2010; Yang & Jolly, 2009; Okazaki, 2004).

Table 13. Summary of Research Hypotheses Testing Using Stepwise Regression Analysis

Hypothesis	Description	Results
H_1	Social influences of mobile phone users do not significantly predict the perceived level of effectiveness of mobile services.	*Can Significantly Predict*
H_2	Social influences of mobile phone users do not significantly predict the perceived level of acceptance as to the mobile services.	*Can Significantly Predict*
H_3	Mobile phone user's behavioral beliefs towards mobile network services cannot significantly predict their network subscription decisions.	*Can Significantly Predict*
H_4	Mobile phone user's perceived level of acceptance as to the mobile services does not significantly predict their perceived level of effectiveness on the mobile services.	*Can Significantly Predict*

Structural Modeling Analysis of the Network Subscription Decisions of Mobile Phone Users in Davao Region

Fit indices result on the specification of the structural model, as depicted in Table 14, did not establish a marginal model fit although the model itself is found to be significant at a 0.01 level of significance with the significance value of 0.000. Based on the results, the researcher considered the respecification of the structural model to improve its model fit through further purification of observed variables as underscored by its modification indices (MI). In this manner, the respecification process allows the researcher to eliminate overlap in item content (Byrne) that may reflect bias and social desirability (Aish& Jöreskog, 1990). Further, this process allows the researcher to remain consistent to the Modified TAM espoused by Venkatesh and Davis (1996) and supported by other researchers (Ghazizadeh et al, 2012; Wu & Wang, 2005; Gentry &Calantone, 2002; Brown et al, 2002, Jantan et al, 2001).

Table 14. Structural Relations for the Specification of the Structural Model – Fit Indices for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Goodness of Fit Measures	Recommended Value	Structural Model Value	Comment
Relative/Normed Chi-Square Ratio (x^2/df)	≤ 5.00	5.9316	Above accepted range.
p Value for Test of Close Fit (pClose)	≤ 0.10	0.0000	Within accepted range.
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.1048	Above accepted range.
Root Mean Square Residual (RMR)	≤ 0.08	0.2153	Above accepted range.
Standardized Root Mean Square Residual (SRMR)	≤ 0.08	0.1065	Above accepted range.
Normed Fit Index (NFI)	≥ 0.90	0.6776	Below accepted range.
Tucker-Lewis Index (TLI)	≥ 0.90	0.7006	Below accepted range.
Comparative Fit Index (CFI)	≥ 0.90	0.7157	Below accepted range.
Goodness of Fit Index (GFI)	≥ 0.90	0.4825	Below accepted range.
Adjusted Goodness of Fit Index (AGFI)	≥ 0.90	0.4327	Below accepted range.

In Figure 6, the standardized regression coefficients among the identified observed variables have indicated "*medium*" to "*large*" direct effects to the structural model. This is specifically evident when looking at the *Effectiveness of Mobile Services* and *Acceptance of Mobile Services* latent constructs, where its standardized regression coefficients are greater than 0.50 thereby exhibiting a "*large*" direct effect between observed variables and the latent construct.

While the fit indices of the structural model have pointed out to its lack of model fit, it has met the local minimum fit given the successful estimation of the variances and covariances between observed and latent constructs. However, certain observed variables would have to be reviewed as they have exhibited higher MI than the default threshold for MI of 4.00 (Jöreskog&Sörbom, 1986). These improvements should reduce the chi-square statistic at a value equal to the minimum required to produce statistical significance at the alpha risk of 0.05 (Reinard, 2006).

In the conduct of structural model analysis through paths, the critical ratio (C.R.) is used as one of the tools for selectively eliminating parameters (Jöreskog&Sörbom, 1993). Byrne (2010) noted that a C.R. value of greater than 5.00 is considered as a violation of multivariate normality, while Kline (2012) preferred a C.R. value of less than 8.00 as acceptable. For this study, Byrne's C.R. criterion value is used.

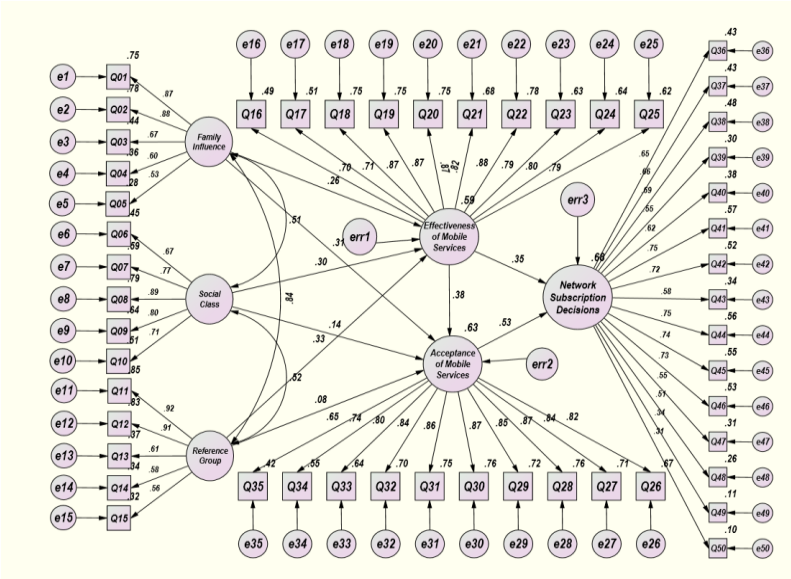

Figure 6.Structural Model Specification for the Network Subscription Decisions of Mobile Phone Users from the Selected Cities in the Davao Region

The results of the structural model analysis, as reflected in Table 15, revealed that most regression paths are significant at a 0.01 level of significance. However, the path from *Reference Group* to *Acceptance* is deemed as not significant at a 0.05 level of significance. Even if most of the paths are deemed significant and supports their associated hypotheses, a respecification of the structural model is necessary given the results of the fit indices during its specification process.

Table 15. Standardized Path Estimates for the Specified Structural Model for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Path	Estimate	t-value	Critical Ratio	p-value
H_{1a}: Family Influence→Effectiveness	0.199	0.060	3.307	<0.001*
H_{1b}: Social Class→Effectiveness	0.273	0.043	6.275	<0.001*
H_{1c}: Reference Group→Effectiveness	0.245	0.059	4.117	<0.001*
H_{2a}: Family Influence→Acceptance	0.281	0.070	4.040	<0.001*
H_{2b}: Social Class→Acceptance	0.153	0.049	3.156	0.002*
H_{2c}: Reference Group→Acceptance	0.070	0.068	1.041	0.298n.s.
H_{3a}: Effectiveness→Network Subscription Decision	0.356	0.056	6.374	<0.001*
H_{3b}: Acceptance→Network Subscription Decision	0.448	0.050	8.921	<0.001*
H_5: Effectiveness→Acceptance	0.459	0.068	6.720	<0.001*

x^2 = 6898.420 (d.f. = 1163)
* = Significant at 0.01 level of significance
** = Significant at 0.01 level of significance
n.s. = Not significant at 0.05 level of significance

Structural Model Respecification (1st Stage)

Respecification of structural models is conducted based on improving the fit indices resulting from the tests of the original model (Jöreskog&Sörbom, 1993). It should be noted, however, that any causal relationship arising from the respecification of the original model must be theoretically acceptable (Johnston, 2006).

In the first respecification of the original structural model, respecification is made between observed variables in each of the 6 latent constructs. As gleaned in Table 16, absolute fit indices (x^2/df = 3.771; SRMR = 0.0855) and noncentrality-based fit index (RMSEA = 0.079) for the structural model have improved after the respecification thereby indicating an acceptable fit to the data about its minimum criteria as mentioned earlier. Other goodness-of-fit indices (NFI = 0.798; TLI = 0.832; CFI = 0.842; GFI = 0.646; AGFI = 0.606) may have improved during the respecification process, as it is now closer to 1, though it is still considered as far from acceptable.

Table 16. Structural Relations for the First Stage of the Respecified Testing of the Structural Model – Fit Indices for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Goodness of Fit Measures	Recommended Value	Structural Model Value	Comment
Relative/Normed Chi-Square Ratio (x^2/df)	≤ 5.00	3.771	Within accepted range.
p Value for Test of Close Fit (pClose)	≤ 0.10	0.000	Within accepted range.
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.079	Within accepted range.
Root Mean Square Residual (RMR)	≤ 0.08	0.166	Above accepted range.
Standardized Root Mean Square Residual (SRMR)	≤ 0.08	0.0855	Within accepted range.
Normed Fit Index (NFI)	≥ 0.90	0.798	Below accepted range.
Tucker-Lewis Index (TLI)	≥ 0.90	0.832	Below accepted range.
Comparative Fit Index (CFI)	≥ 0.90	0.842	Below accepted range.
Goodness of Fit Index (GFI)	≥ 0.90	0.646	Below accepted range.
Adjusted Goodness of Fit Index (AGFI)	≥ 0.90	0.606	Below accepted range.

In the respecification process, certain observed variables are found to have a high degree of overlap as to item content due to substantially high MI values as revealed in Figure 7. These observed variables should be respecificed to improve the fitness of the structural model. These redundancies, also known as measurement error covariances (Byrne, 2010), are derived from characteristics that are specific either to the items or to the respondents (Aish&Jöreskog, 1990).

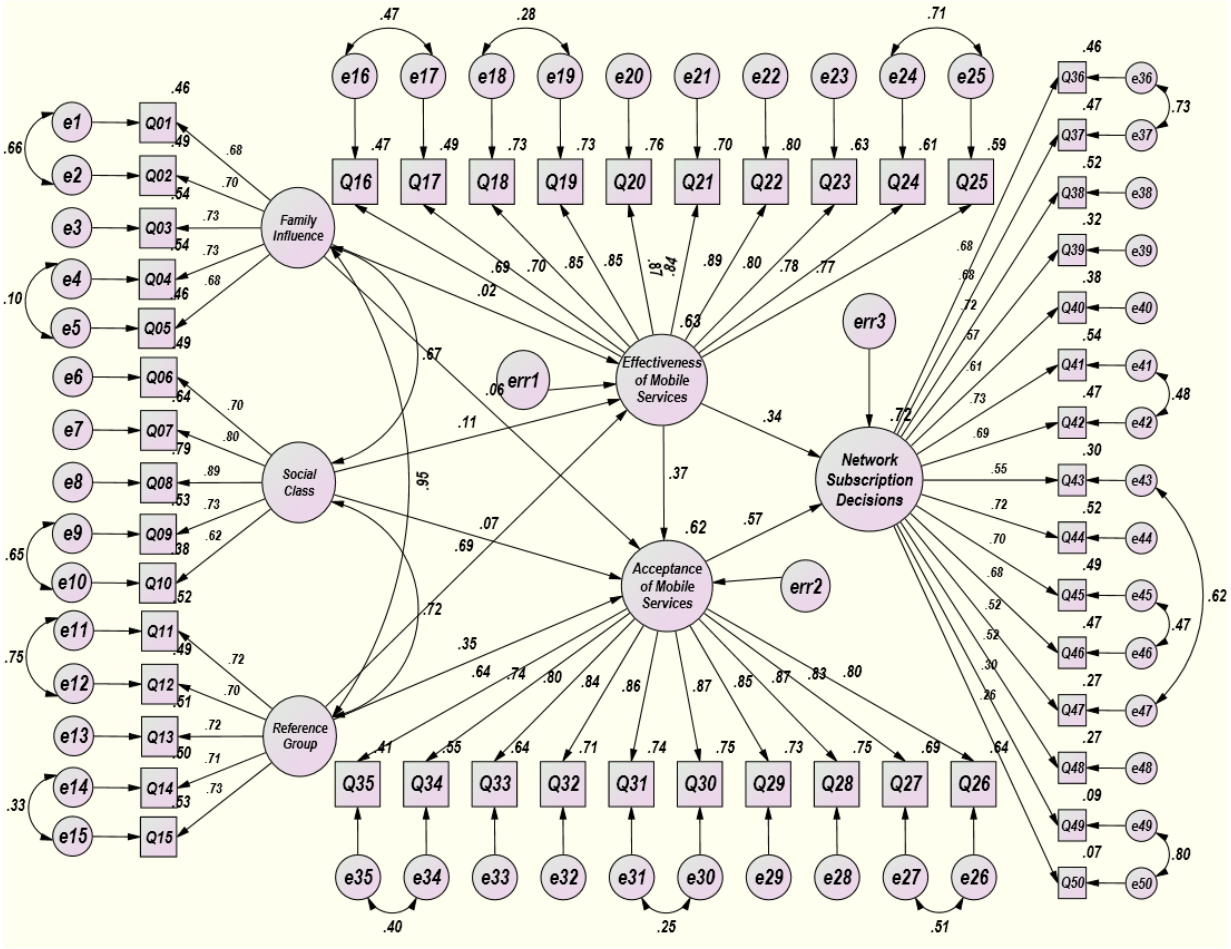

Figure 7.First Stage of the Respecified Structural Model for the Network Subscription Decisions of Mobile Phone Users from the Selected Cities in the Davao Region

In the respecification process, the question items in each latent construct are identified for their similarities in characteristics. For *Family Influences*, the question items Q1 <-->Q2 (MI = 44.481); and, Q4 <--> Q5 (MI = 55.377) are respecified. Question items Q9 <--> Q10 (MI = 179.601) are respecified for *Social Class*. Lastly, question items Q11 <--> Q12 (MI = 47.064); and, question items Q14 <--> Q15 (MI = 128.341) under *Reference Group* are respecified.

Question items Q16 <--> Q17 (MI = 98.874); Q18 <--> Q19 (MI = 27.688); and, Q24 <--> Q25 (MI = 241.663) are respecified under the *Effectiveness of Mobile Services*. The question items that are respecified under the *Acceptance of Mobile Services* are: Q26 <--> Q27 (MI = 117.582); Q30 <--> Q31 (MI = 26.523); and, Q34 <--> Q35 (MI = 73.721). Finally, the respecified question items under the *Network Subscription Decisions* are: Q36 <--> Q37 (MI = 278.236); Q41 <--> Q42 (MI = 98.353);

Q43 <--> Q47 (MI = 175.487); Q45 <--> Q46 (MI = 84.473); and, Q49 <--> Q50 (MI = 286.006). These question items are to be respecified, with the intent of improving the model's fit indices, since these are believed to have shared similar characteristics.

In the results of the respecified model presented in Table 17, the paths from the exogenous variables (*Family Influence*, *Social Class*) to *Effectiveness* and *Acceptance of Mobile Services* are not significant at a 0.05 level of significance except the *Reference Group→Effectiveness* path. The paths from the endogenous variables (*Effectiveness*, *Acceptance*) to *Network Subscription Decisions* and the path from *Acceptance* to *Effectiveness* are appraised as highly significant at a 0.01 level of significance. With the respecifiction of the original model, the hypothesized relationships between Social Influences (excluding *Reference Group→Effectiveness* path) as well as Effectiveness and Acceptance of Mobile Services are rejected after it is significant in the original model. Along with the need to further improve the model fit indices, the researcher decided to proceed with the second respecification stage.

Table 17. Standardized Path Estimates for the First Respecified Structural Model for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Path	Estimate	t-value	Critical Ratio	p-value
H_{1a}: Family Influence→Effectiveness	0.017	0.305	0.055	0.956$^{n.s.}$
H_{1b}: Social Class→Effectiveness	0.091	0.062	1.464	0.143$^{n.s.}$
H_{1c}: Reference Group→Effectiveness	0.658	0.335	1.964	0.050*
H_{2a}: Family Influence→Acceptance	0.065	0.313	0.207	0.836$^{n.s.}$
H_{2b}: Social Class→Acceptance	0.073	0.064	1.138	0.255$^{n.s.}$
H_{2c}: Reference Group→Acceptance	0.399	0.360	1.108	0.268$^{n.s.}$
H_3: Effectiveness→Network Subscription Decision	0.362	0.059	6.120	<0.001**
H_4: Acceptance→Network Subscription Decision	0.510	0.055	9.327	<0.001**
H_5: Acceptance→Effectiveness	0.440	0.082	5.354	<0.001**

x^2 = 4325.787 (d.f. = 1147)
** = Significant at 0.01 level of significance
n.s. = Not significant at 0.05 level of significance

Final Respecification of the Structural Model

In the final respecification stage of the model, the researcher placed emphasis on the specification of the cross-loading of observed variables across alternate latent constructs. Cross-loading of observed variables is done with the intent of identifying variables that are deemed as problematic and required content revision (Byrne, 2010), with the intention of correcting it and have it load on a more appropriate latent construct.

In the final respecification of the structural model, the goodness-of-fit statistics have yielded favorable results as exhibited in Table 18. Absolute fit indices (x^2/df = 3.744; SRMR = 0.0842) and noncentrality-based fit index (RMSEA = 0.078) for the structural model have improved after further respecification thus demonstrating an acceptable model fit. In addition, other goodness-of-fit indices (NFI = 0.799; TLI = 0.833; CFI = 0.844; GFI = 0.650; AGFI = 0.611) have improved after final stage of the respecification process.

Table 18. Structural Relations for the Final Respecified Testing of the Structural Model – Fit Indices for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Goodness of Fit Measures	Recommended Value	Structural Model Value	Comment
Relative/Normed Chi-Square Ratio (x^2/df)	≤ 5.00	3.744	Within accepted range.
p Value for Test of Close Fit (pClose)	≤ 0.10	0.000	Within accepted range.
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.078	Within accepted range.
Root Mean Square Residual (RMR)	≤ 0.08	0.164	Above accepted range.
Standardized Root Mean Square Residual (SRMR)	≤ 0.08	0.0842	Within accepted range.
Normed Fit Index (NFI)	≥ 0.90	0.799	Below accepted range.
Tucker-Lewis Index (TLI)	≥ 0.90	0.833	Below accepted range.
Comparative Fit Index (CFI)	≥ 0.90	0.844	Below accepted range.
Goodness of Fit Index (GFI)	≥ 0.90	0.650	Below accepted range.
Adjusted Goodness of Fit Index (AGFI)	≥ 0.90	0.611	Below accepted range.

In the second and final stage of respecification of the structural model, one observed variable is identified and cross-loaded onto an alternate latent construct from the latent construct that it was originally designed to load. As depicted in Figure 8, question item number Q6 ("*People who are important to me think that I should use the mobile network carrier*") is identified as problematic and in need of content revision as it is specified to load more onto an alternate latent construct (*Acceptance of Mobile Services*) apart from its original latent construct (*Social Class*). This is in reference to its generated MI value of 18.712 for the *AcceptanceQ6* path.

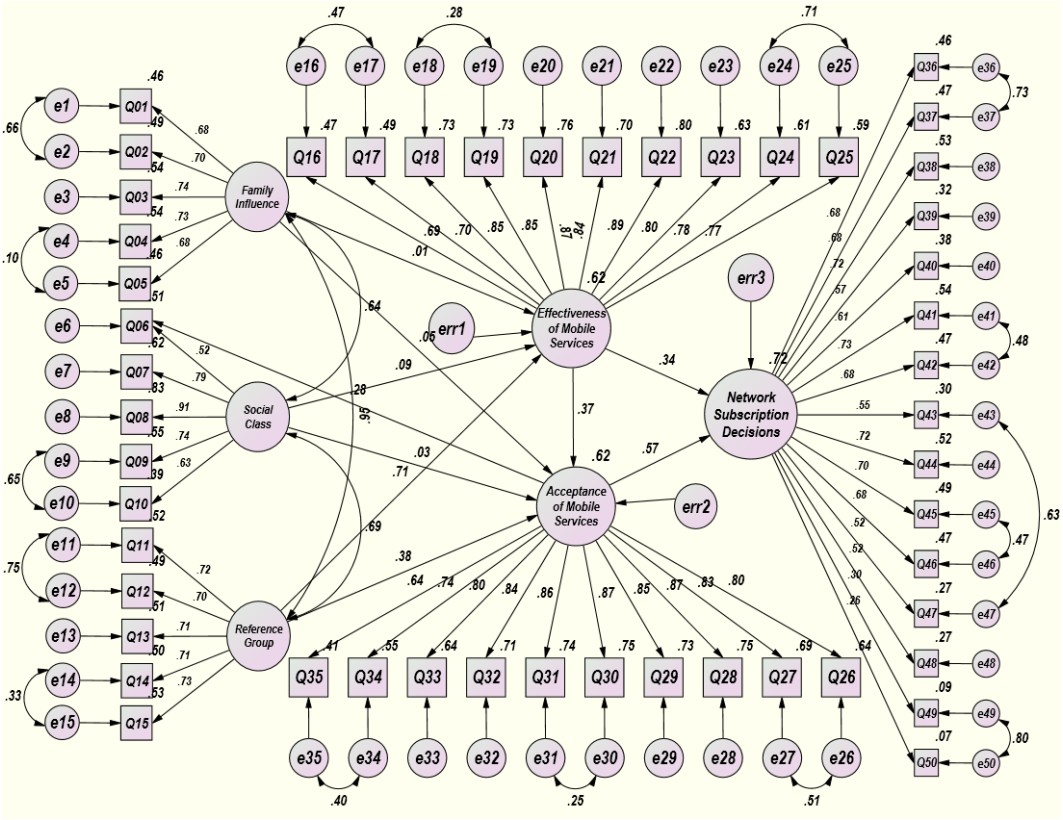

Figure 8.Results of the Final Respecified Structural Model for the Network Subscription Decisions of Mobile Phone Users from the Selected Cities in the Davao Region

In looking at its empirical reasoning behind the cross-loading of the identified observed variable, the researcher can draw parallels on the studies conducted by Rao and Troshani (2007) wherein the acceptance of technology is certain especially when users look upon the degree of difficulty in using especially mobile technology and services. The simplicity of SMS (Xu et al, 2006), which is popular among the mobile phone users in the Davao Region, is instrumental in determining the acceptance of mobile services. This runs consistent to Suki's (2011) findings, which highlights the simplicity of mobile services as a critical factor for its acceptance.

Since price can be taken in as a factor in the acceptance of mobile services (Haque et al, 2010), the researcher believed that mobile phone users can be influenced by persons that belong to his social class who may be critical of the prices given by the mobile network carriers on its services. This is consistent to the findings of Mahatanankoon et al (2005), wherein social value is crucial.

As exhibited in Table 19 the results of the path analysis on the final respecification of the structural model yielded paths from the exogenous variables (*Family Influence*, *Social Class*) to *Effectiveness* and *Acceptance of Mobile Services* that are believed to be not significant at the 0.05 level of significance. However, the *Reference Group*→*Effectiveness* path is evaluated as significant at the 0.05 level of significance. The paths from the endogenous variables (*Effectiveness*, *Acceptance*) to *Network Subscription Decisions* and the path from *Acceptance* to *Effectiveness* are appraised as significant at a 0.01 level of significance. This means that the reference groups, among the social influence factors, influence the perceived effectiveness of mobile services. Further, the mobile phone users' network subscription decisions can be affected by their perceived effectiveness and their acceptance of mobile services.

Table 19. Standardized Path Estimates for the Final Respecification of the Structural Model for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Path	Estimate	t-value	Critical Ratio	p-value
H_{1a}: Family Influence→Effectiveness	0.012	0.308	0.040	0.968$^{n.s.}$
H_{1b}: Social Class→Effectiveness	0.102	0.078	1.313	0.189$^{n.s.}$
H_{1c}: Reference Group→Effectiveness	0.677	0.333	2.032	0.042*
H_{2a}: Family Influence→Acceptance	0.061	0.316	0.194	0.846$^{n.s.}$
H_{2b}: Social Class→Acceptance	0.047	0.080	0.590	0.555$^{n.s.}$
H_{2c}: Reference Group→Acceptance	0.434	0.360	1.205	0.228$^{n.s.}$
H_{3a}: Effectiveness→Network Subscription Decision	0.362	0.059	6.109	<0.001**
H_{3b}: Acceptance→Network Subscription Decision	0.511	0.055	9.340	<0.001**
H_4: Acceptance→Effectiveness	0.445	0.083	5.342	<0.001**

x^2 = 4290.897 (d.f. = 1146)

* = Significant at 0.05 level of significance

** = Significant at 0.01 level of significance

n.s. = not significant at 0.05 level of significance

In the final analysis of the respecified structural model, social influence variables are found to have a negative effect in inducing the mobile phone user's perceptions regarding the effectiveness and acceptance of mobile services presently offered by mobile network carriers. This runs contrary to the findings of the researchers regarding the effect of social influences (Noor et al, 2013; Wang et al, 2013; Abadi et al, 2011; Atilgan-Inan&Karaca, 2011; Abu Ghannam, 2011; Sykes et al, 2009; Hsu & Lu, 2004; Taylor & Todd, 1995; Venkatesh& Davis, 2000) in the acceptance and usage of technology. Further, this runs contrary to empirical studies conducted regarding user adoption of multi-person applicationsandtechnologies like online games (Hsu & Lu, 2004),

enterprise resource planning systems (Nocera&Dunckley, 2007), electronic messaging (Rice et al, 1990), and blogging (Hsu & Lin, 2008).

As a subjective norm, it is believed to be consistent with the findings of Davis et al (1989) when it was first dropped from the TAM as it was found to be a weak predictor of technology usage behavior since "*the specific application studied, word processing, is fairly personal and individual, and may be driven less by social influences compared to more multi-person applications* (p. 998)". This was supported by subsequent researches (Song & Kim, 2006; Venkatesh et al, 2003; Ajzen, 1991). Further, it was only able to generate a relatively small magnitude of influence when compared to attitude and other constructs (Bagozzi& Lee, 2002).

Consequently, Ajzen et al (2004) reflected that performing socially desirable behaviors can be at times overestimated by intentions. This discrepancy is further highlighted in a study by Sheeran (2002), wherein 26-57% of the participants failed to carry out their intention to use condoms, to undergo a cancer screening, or to exercise. Ajzen et al (2011) pointed out that, in spite of sufficient factual information provided, people continue to take unnecessary risks or engage in socially undesirable behavior. Oftentimes, people failed to act in line with their stated intention due to a lack of congruity between intentions and behavior (Ajzen, 2005). Going through this line of thought, it can be taken that mobile phone users could have the tendency to not follow social influences as basis for their network subscription decisions and rely instead on personal knowledge and understanding.

The rest of the paths appear to be statistically significant in reference to the recommended values and the final respecified structural model exhibits satisfactory fit (x^2/df = 3.744; SRMR = 0.0842; RMSEA = 0.078), consistent to the researches espousing the use of TAM, TRA and TPB in influencing behavioral intentions specifically on network subscription albeit marginally considering the other goodness-of-fit results (NFI = 0.799; TLI = 0.833; CFI = 0.844; GFI = 0.650; AGFI = 0.611) in spite of its improvement. It can be said that, based on the results of the study as reflected in Table 20, that mobile phone users look up to the two individual beliefs (effectiveness and acceptance) as basis for mobile network carrier adoption leading to network subscription decisions regardless of whether social influences offer positive or negative effect to the said beliefs. However, it should be noted that reference groups have a profound effect on the respondents' perceived effectiveness of mobile services that are currently available.

Table 20. Summary of Research Hypotheses Testing Results Based on the Final Respecification of the Structural Model for the Network Subscription Decisions of Mobile Phone Users in the Davao Region

Hypotheses	Structural Path	Results
H_{1a}	Family InfluenceEffectiveness	Not Supported
H_{1b}	Social ClassEffectiveness	Not Supported
H_{1c}	Reference GroupEffectiveness	Supported
H_{2a}	Family InfluenceAcceptance	Not Supported
H_{2b}	Social ClassAcceptance	Not Supported
H_{2c}	Reference GroupAcceptance	Not Supported
H_{3a}	EffectivenessNetwork Subscription Decision	Supported
H_{3b}	AcceptanceNetwork Subscription Decision	Supported
H_4	EffectivenessAcceptance	Supported

CONCLUSIONS

In reference to the outcomes of the stepwise multiple regression analyses, it can be concluded that social influence variables can significantly predict the respondents' two individual behaviors (*Effectiveness* and *Acceptance*). Family *Influence* was found to be the strongest predictor when compared to the other social influence variables. Also, it was learned that the respondents' perceived level of effectiveness and acceptance of mobile services can significantly predict their network subscription decisions. Lastly, the respondents' level of effectiveness was learned to be highly significant in predicting their perceived level of acceptance of the mobile services.

As to the outcomes of the structural analysis of the model, the final respecification of the model yielded satisfactory model results. Two social influence latent variables (*Family Influence* and *Social Class*) were found to be insignificant in predicting the respondents' perceived effectiveness while all the social influence latent variables were learned to be insignificant in affecting the perceived acceptance of mobile services, leading to their network subscription decisions. Further, the two individual behaviors (*Effectiveness* and *Acceptance*) were found to be highly significant in predicting the respondents' network subscription decisions on the mobile service carriers that are presently available. As a final point, the respondents' effectiveness was learned to be highly significant in predicting their perceived acceptance of the mobile services presently available.

REFERENCES

Abadi, H.R.D., Hafshenjani, S.N.A., &Zadeh, F.K. (2011). Considering factors that affect user's online purchase intentions using structural equation modeling. *Interdisciplinary Journal of Contemporary Research in Business*, 3(8): 463-471.

Abu Ghannam, B. (2011). *Mobile services adoption model.* Doctoral thesis, WU Vienna University of Economics and Business: Vienna, Austria. Retrieved September 21, 2012, from http://epub.wu.ac.at/3035/.

Aday, L. (1996).*Designing and conducting health surveys*. San Francisco: Jossey-Bass.

Aish, A. M., &Jöreskog, K. G. (1990). A panel model for political efficacy and responsiveness: An application of LISREL 7 with weighted least squares. *Quality and Quantity*, 19: 716-723.

Ajzen, I. (1991). The theory of planned behavior.*Organizational Behavior and Human Decision Processes*, 20(2): 179–211.

Ajzen, I. (2005). Laws of human behavior: symmetry, compatibility, and attitude- behavior correspondence. In A. Beauducel, B. Biehl, M. Bosniak, W. Conrad, G. Schönberger, & D. Wagener (Eds.), *Multivariate research strategies* (pp. 3-19). Aachen, Germany: Shaker Verlag.

Ajzen, I. &Fishbein, M. (1980), *Understanding attitudes and predicting social behaviour*, Englewood Cliffs, NJ: Prentice-Hall.

Ajzen, I., Brown, T. C., &Carvajal, F. (2004). Explaining the discrepancy between intentions and actions: The case of hypothetical bias in contingent valuation.*Personality and Social Psychology Bulletin*, *30*, 1108–1121.

Ajzen, I., Joyce, N., Sheikh, S., & Cote, N. G. (2011). Knowledge and the prediction of behavior: The role of information accuracy in the theory of planned behavior. *Basic and Applied Social Psychology*, 33: 101-117. DOI: 10.1080/01973533.2011.568834

Alexander, R. K. (2003). *A tractable cross-nested logit model for evaluating two-way interconnection competition with multiple network subscription*. Ph.D. dissertation: The George Washington University, United States – District of Columbia. Retrieved July 3, 2010, from ABI/INFORM Global. (Publication No.AAT 3112526).

Amante, A., &Vareda, J. (2010). Switching costs in the Portuguese telecoms sector: Results. *Portuguese Competition Authority*, unpublished.

Amin, H. (2008). Factors affecting the intentions of customers in Malaysia to use mobile phone credit cards, *Management Research News, 31(7),* 493-503.

Andres, L. (2012). *Designing and doing survey research*. London: Sage Publications Ltd.

Atilgan-Inan, E., &Karaca, B. (2011).Planned behavior of young consumers shopping on the Internet.*European Journal of Social Sciences*, 19(4): 528-537.

Babbie, E. (1990). *Survey research methods*, 2nd ed., Belmont, CA: Wadsworth.

Backstrom, C. H. &Hursh, G. (1963).*Survey research*. Evanston, IL: Northwestern University Press.

Bagozzi R. P. & Lee K.-H. (2002). Multiple routes for social influence: The role of compliance, internalization, and social identity. *Social PsychologyQuarterly*, 65(3):226–247.

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

Bandura, A. (2001). Social cognitive theory of mass communication.*Mediapsychology, 3*(1), 265-299. http://dx.doi.org/10.1207/S1532785XMEP0303_03

Bauer, Barnes, S. J., Reichardt, T., & Neumann, M. M. (2005).Driving consumer acceptance of mobile marketing: A theoretical framework and empirical study.*Journal of Electronic Commerce Research, 6*(3): 181-192.

Belk, R. W. (1975). Situational variables and consumer behavior.*Journal of Consumer Research*, 2(3): 157-164.

Beneke, J., Cumming, G., Stevens, A., &Versfeld, M. (2010).Influences on attitude toward mobile text message advertisements: An investigation of South African youth.*International Journal of Mobile Marketing, 5*(1): 77-97.

Bentler, P. M., &Bonett, D. G. (1980).Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, *88*(3), 588.

Bhattacherjee, A. (2002). Individual trust in online firms: Scale development and initial test. *Journal of management information systems*, *19*(1), 211-241.

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2001).*Consumer behavior,* 9th ed., Ohio: USA.: South-Western Thomson Learning.

Bond, T. & Fox, C. (2001).*Applying the Rasch Model*. Mahwah: Lawrence Erlbaum Associates.

Bowling, A. (1997).*Research methods in health*. Buckingham: Open University Press.

Brace, N., Kemp, R., &Snelgar, R. (2012). *SPSS for psychologists*, 5th ed., London: Routledge Academic.

Brown, S. A., Massey, A. P., Montoya-Weiss, M. M. &Burkman, J. R. (2002). Do I really have to? User acceptance of mandated technology.*European Journal of Information Systems,* 11, 283-295

Browne, M. W., &Cudeck, R. (1993). Alternative ways of assessing model fit. *Sage focus editions*, *154*, 136-136.

Burns, N., & Grove, S. K. (1997).*The practice of nursing research conduct, critique, & utilization*. Philadelphia: W.B. Saunders and Co.

Byrne, B. M. (2010). Multivariate applications series. *Structural equation modeling with AMOS: Basic concepts, applications, and programming. New York: Routledge/Taylor & Francis Group*.

Cameron, D. (2006, December). The rocket in your pocket: How mobile phones became the media by stealth. In *Second Joint Journalism Education (JEA)/Journalism Education Association of New Zealand (JEANZ) conference, Auckland, December* (pp. 4-7).

Cheong, J. H., & Park, M.C. (2005). Mobile Internet acceptance in Korea, *Internet Research,* 15(2): 125-140.

Cheung, G. W. &Rensvold, R. B. (2002).Evaluating goodness-of-fit indexes for testing measurement invariances.*Structural Equation Modeling*, 9: 233-255.

Chiu, C. M., Hsu, M. H., Sun, S. Y., Lin, T. C., & Sun, P. C. (2005). Usability, quality, value and e-learning continuance decisions, *Computers & Education,* 45(4):399-416.

Choudhury, V. &Karahanna, E. (2008). The relative advantage of electronic channels: a multidimensional view. *MIS Quarterly*, 19(2): 189-211.

Cochran, W. G. (1963). *Sampling techniques*, 2nd ed., New York: John Wiley and Sons, Inc.

Davis, F. (1986).*A technology acceptance model for empirically testing new end-user information systems: theory and results*. Doctoral dissertation, Cambridge, MA: MIT Sloan School of Management. Retrieved July 10, 2010, from DSpace@MIT, http://mit.dspace.org/handle/1721.1/15192

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology.*MIS Quarterly*, 13(3): 319-40.

Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38(3): 475-87.

Davis, A. (2006). Social cognitive theory.*Theories Used in IS research*. Retrieved December 19, 2012, from http://www.istheory.yorku.ca/socialcognitivetheory.htm

Davis, F., Bagozzi, R. P. &Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35(8): 982-1003.Retrieved July 10, 2010, from ABI/INFORM Global. (Document ID: 106203).

Dabholkar, P. A. &Bagozzi, R. P. (2002). An attitudinal model of technology-based self-service: moderating effects of consumer traits and situational factors. *Academy of Marketing Science*, *Journal*, 30(3): 184-201. Retrieved July 3, 2010, from ABI/INFORM Global. (Document ID: 125613681).

De Battisti, F., Nicolini, G. &Salini, S. (2011). The rasch model. In R. S. Kenett& S. Salini (Eds.), *Modern Analysis of Customer Surveys: With Applications Using R*. Chichester, UK: John Wiley & Sons, Ltd. DOI: 10.1002/9781119961154.ch14

De Battisti, F., Nicolini, G. &Salini, S. (2010). The rasch model in customer satisfaction survey data.*Quality Technology & Quantitative Management*, 7(1): 15-34.

Diamantopoulos, A., Siguaw, J. A., &Siguaw, J. A. (2000). *Introducing LISREL: A guide for the uninitiated*.Sage.

Dickinger, A., Arami, M. & Meyer, D. (2008).The role of perceived enjoyment and social norm in the adoption of technology with network externalities.*European Journal of Information Systems*, 17: 4-11. DOI: 10.1057/palgrave.ejis.3000726.

Ewing, M. T., Salzberger, T., &Sinkovics, R. R. (2005).An alternative approach to assessing cross-cultural measurement equivalence in advertising research.*Journal of Advertising*, *Spring*, 34(1): 17-36.

Gefen, D., Straub, D., & Boudreau, M. (2000). Structural equation modeling and regression: guidelines for research practice. *Communications of Association for Information Systems*, 4(7): 1-70.

Gehrt, K. C. & Yan, R.-N.(2004). Situational, consumer, and retailer factors affecting Internet, catalog, and store shopping.*International Journal of Retail & Distribution Management*, 32(1): 5-18.

Gentry, L., &Calantone, R. (2002).A comparison of three models to explain shop-bot use on the web.*Psychology and Marketing*, 19(11): 945-955.

George, D. &Mallery, P. (2003).*SPSS for Windows step by step: a simple guide and reference*, *11.0 update* (*4th ed*.). Boston: Allyn & Bacon.

Ghazizadeh, M., Lee, J., & Boyle, L. (2012).Extending the technology acceptance model to assess automation.*Cognition, Technology, & Work*, 14(1): 39-49. DOI: 10.1007/s10111-011-0194-3.

Gil, R. B., Andrés, E. F., & Salinas, E. M. (2007).Family as a source of consumer-based brand equity.*Journal of Product & Brand Management*, 16(3): 188-199. DOI 10.1108/10610420710751564

Glassberg, B. C. (2000). Individual use of Web technology: A reconceptualization and empirical test of the technology acceptance model. Ph.D. dissertation, University of South Carolina, United States -- South Carolina. Retrieved July 3, 2010, from ABI/INFORM Global.(Publication No. AAT 9981254).

Gliem, J. &Gliem, R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*, 82-88. Retrieved March 1, 2013, from https://scholarworks.iupui.edu/bitstream/handle/1805/344/Gliem%20&%20..?sequence =1

Gordon, N. (2002). A question of response rate.In D. Mundy (Ed.), Solution corner.*Science Editor*, January – February, 25(1): 25-26.

Green, K. &Frantom, C. (14-17 November, 2002). Survey development and validation using the Rasch model. A paper presented at the *International Conference on Questionnaire Development, Evaluation and Testing*. Charleston, SC.

Grzybowski, L. & Pereira, P. (2011).Subscription choices and switching costs in mobile telephony.*Review of Industrial Organization*, 38(1): 23-42.

Han, S., Harkke, V., Mustonen, P., Seppänen, M., &Kallio, M. (2004). Mobilizing medical information and knowledge: some insights from a survey, in *12th European Conference on Information Systems*: Turku, Finland.

Haque, A., Rahman, S., & Rahman, M. (2010). Factor determinants the choice of mobile service providers: structural equation modeling approach on Bangladeshi consumers. *Business and Economics Research Journal*, 1(3): 17-34.

Hasford, J., & Bradley, K. D. (2011).Validating measures of self control via rasch measurement.*The Journal of Applied Business Research*, November/December, 27(6): 45-55.

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2014).*Multivariate data analysis*, 7th ed., Pearson New International Edition. Harlow: Pearson Education Limited.

Hooper, D., Coughlan, J. & Mullen, M. (2008). Structural equation modeling: guidelines for determining model fit. *The Electronic Journal of Business Research Methods*, 6(1): 53-60. Available online at http://www.ejbrm.com

Hsu, C. L., & Lin, J. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management*, *45*, 65–74.

Hsu, C. L., & Lu, H. P. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience.*Information & Management*, *41*, 853–868.

Hu, L. T., &Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Janssens, W., De Pelsmacker, P., & Van Kenhove, P. (2008). *Marketing research with SPSS*.Pearson Education.

Jantan, M., Ramayah, T., & Chin, W.W. (2001). Personal computer acceptance by small and medium companies: Evidence from Malaysia. *JurnalManajemen&Bisnis*, 3(1): 1-14.

Jarvenpaa, S.L., Lang, K.R., Takeda, Y., &Tuunainen, V. (2003).'Mobile commerce at crossroads.*Communications of the ACM*, 26(12): 41-4.

Johnston, A. C. (2006). *An empirical investigation of the influence of fear appeals on attitudes and behavioral intentions associated with recommended individual computer security actions*. Doctoral dissertation, Mississippi State University: Mississippi State, Mississippi.

Jöreskog, K. G., &Sörbom, D. (1986).*SIMPLIS: A fast and simple version of LISREL, preliminary version*. Department of Statistics, University of Uppsala.

Kakihara, M. &Sørensen, C. (2001).Expanding the 'mobility' concept.*ACM SIGGROUP Bulletin*, 22(3): 33-37.

Karahanna, E., Straub, D. W., &Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Quarterly*, 23(2): 183–213.

Kenett, R. S., &Salini, S. (2011). Modern analysis of customer satisfaction surveys: comparison of models and integrated analysis. *Applied Stochastic Models in Business and Industry*, 27: 465-475. DOI: 10.1002/asmb.927

Khan, M. N., &Allil, K. (2010). Determinants of mobile advertising adoption: A cross-country comparison of India and Syria. *International Journal of Mobile Marketing, 5*(1): 41-59.

Kim, K., Shin, H., & Kim, B. (2011).The role of psychological traits and social factors in using new mobile communication services.*Electronic Commerce Research and Applications*, 10: 408-417. DOI: 10.1016/j.elerap.2010.11.004

King, W. R., & He, J. (2006).A meta-analysis of the technology acceptance model. *Information & management*, *43*(6), 740-755.

Kleijnen, M., Wetzels, M., & de Ruyter, K. (2004).Consumer acceptance of wireless finance.*Journal of Financial Services Marketing*, 8(3): 206-217.

Kleinrock, L. (1996). Nomadicity: anytime, anywhere in a disconnected world. *Mobile Networks and Applications*, 1(4): 351-357.

Kline, R. B. (2012). *Principles and practice of structural equation modeling*, 3rd ed., New York: Guilford.

Krause, D. R., Scannell, T. V., &Calantone, R. J. (2000) A structural analysis of the effectiveness of buying firms' strategies to improve supplier performance.*Decision Sciences*, 30(1): 33–55.

LaRose, R., Mastro, D., &Eastin, M. S. (2001). Understanding Internet usage: a social cognitive approach to uses and gratifications.*Social Science Computer Review*, 19(4): 395–413.

Lance, C. E., Butts, M. M., &Michels, L. C. (2006). The sources of four commonly reported cutoff criteria: What did they really say?. *Organizational research methods*, *9*(2), 202-220.

Lee, S. (2003). *An integrative study of mobile technology adoption based on the technology acceptance model, theory of planned behavior, and diffusion of innovation theory*. Doctoral dissertation, University of Nebraska.

Lewis, W., Agarwal, R., &Sambamurthy, V. (2003). Sources of influence on beliefs about information technology use: an empirical study of knowledge workers. *MIS Quarterly*, 27(4): 657-678.

Loraas, T., & Wolfe, C. J. (2006). Why wait? Modeling factors that influence that decision of when to learn a new use of technology. *Journal of Information Systems*, 20, Fall: 1–23.

Ma, L. (2007). *"I'll trust you if I expect you to trust me": an analysis of interpersonal trust, friends, and social interactions within social networks.* Master's thesis, Medford, MA: Tufts University. Retrieved April 10, 2012, from ProQuest Dissertations and Theses.(Accession Order No. AAT 1451129)

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2): 130-149.

Mafé, C., Blas, S., &Tavera-Mesias, J. (2009). A comparative study of mobile messaging services acceptance to participate in television programmes. *Journal of Service Management*, 21(1): 69-102. DOI: 10.1108/09564231011025128

Mahatanankoon, P., Wen, H. J., & Lim, B. (2005). Consumer-based m-commerce: exploring consumer perception of mobile applications. *Computer standards & interfaces*, *27*(4), 347-357.

Maruyama, G. M. (1998). *Basics of structural equation modeling*. Thousand Oaks, California: Sage Publications, Inc.

McKnight, D. H., Choudhury, V., &Kacma, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *InformationSystems Research*,13(3): 334–359.

Miles, J. &Shevlin, M. (2001).*Applying regression and correlation: a guide for students and researchers*. London: SAGE Publications.

Morales, M., &Ladhari, R. (2011). Comparative cross-cultural service quality: an assessment of research methodology. *Journal of Service Management*, 22(2): 241-265. DOI: 10.1108/09564231111124244

Moore, G. C. &Benbasat, I. (1991).Development of an instrument to measure the perceptions of adopting an information technology innovation.*Information Systems Research*, September: 192-223.

Moore, E. S., Wilkie, W. L. & Lutz, R. J. (2002). Passing the torch: intergenerational influences as a source of brand equity.*Journal of Marketing*, 66, April: 17-37.

Muk, A. (2007). Consumers' intentions to opt in to SMS advertising: A cross-national study of young Americans and Koreans. *International Journal of Advertising, 26*(2): 177-198.

Nocera, J. A., &Dunckley, L. (2007).An approach to the evaluation of usefulness as a social construct using technological frames. *International Journal of Human-Computer Interaction*, *22*(1&2), 153–172.

Noor, M.N.M., Sreenivasan, Jayashree, & Ismail, H. (2013). Malaysian consumers attitude towards mobile advertising, the role of permission and its impact on purchase intention: a structural equation modeling approach. *Asian Social Science*, 9(5): 135-153. DOI: 10.5539/ass.v9n5p135

Okazaki, S. (2004). How do Japanese consumers perceive wireless ads? A multivariate analysis.*International Journal of Advertising, 23, 429-454.*

Orozco, M., Jacob, K. &Tescher, J. (2007). Card-based remittances: a closer look at supply and demand. *Chicago, Illinois: The Center for Financial Services Innovation*. Retrieved December 12, 2012, from http://www.aecf.org/upload/publicationfiles/IM3622H5010.pdf

Pavlou, P. A., & Stewart, D. W. (2000). Measuring the effects and effectiveness of interactive advertising: A research agenda.*Journal of Interactive Advertising, 1*(1). Retrieved from http://www.jiad.org

Peck, B. (2000). *Ethnicity: a study of participation, aspirations and achievement in Education*. Doctoral thesis, Murdoch University: Perth, Australia.

Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., &Pahnila, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model, *Internet Research*, 14(3): 224-235.

Qin, L., Kim, Y., Hsu, J., & Tan, X. (2011).The effects of social influence on user acceptance of online social networks.*International Journal of Human-Computer Interaction*, 27(9): 885-899. DOI: 10.1080/10447318.2011.555311

Rao, S. &Troshani, I. (2007).A conceptual framework and propositions for the acceptance of mobile services.*Journal of Theoretical and Applied Electronic Commerce Research*, 2(2): 61-73. Retrieved July 6, 2010, from ABI/INFORM Global. (Document ID: 1326728051).

Rasch, G. (1960/80).*Probabilistic models for some intelligence and attainment tests, with a foreword and an afterword by Benjamin D. Wright*, Copenhagen: Danish Institute for Educational Research, 1960; Chicago: University of Chicago Press, 1980.

Rea, L. & Parker, R. (1997).*Designing and conducting survey research*, 2nd ed., San Francisco, CA: Jossey Bass.

Reinard, J. C. (2006). *Communication research statistics*.Sage.

Reisinger, Y., &Mavondo, F. (2007). Structural equation modeling: Critical issues and new developments. *Journal of Travel & Tourism Marketing*, *21*(4), 41-71.

Rice, R. E., Grant, A. E., Schmitz, J., &Torobin, J. (1990). Individual and network influences on the adoption and perceived outcomes of electronic messaging. *Social Networks*, *12*(1), 27–55.

Rogers, E. M. (1995). *Diffusion of innovations*, 4th ed., Free Press: New York.

Rose, G. (2004). Mobile phones as traffic probes.In *CONFERENCE OF AUSTRALIAN INSTITUTES OF TRANSPORT RESEARCH (CAITR), 26TH, 2004, MELBOURNE, VICTORIA, AUSTRALIA* (No. 36-2004).

Salzberger, T. (2000).An alternative way of establishing measurement in marketing research - its implications for scale development and validity. In A. O'Cass (ed.), *Proceedings of the 2000 Australia and New Zealand Marketing Academy Conference* (*ANZMAC*): Gold Coast, Australia.

Salzberger, T., &Sinkovics, R. R. (2006).Reconsidering the problem of data equivalence in international marketing research: contrasting approaches based on CFA and the Rasch model for measurement.*International Marketing Review*, 23(4): 390-417. DOI: 10.1108/02651330610678976

Salzberger, T., Sinkovics, R., &Schlegelmilch, B. (1999). Data equivalence in cross-cultural research: a comparison of Classical Test Theory and Latent Trait Theory based approaches. *Australasian Marketing Journal*, 7(2): 23-28.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006).Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of educational research*, *99*(6), 323-338.

Schumacker, R. E., & Lomax, R. G. (2004).*A beginner's guide to structural equation modeling*, 2nd ed., Mahwah, NJ: Lawrence Erlbaum Associates.

Shao, A. (2002). *Marketing research: an aid to decision making*, 2nd ed., Ohio: South-Western.

Sheeran, P. (2002). Intention–behavior relations: A conceptual and empirical review. In W. Stroebe& M. Hewstone (Eds.), *European review of socialpsychology*(Vol. 12, pp. 1–36).Chichester, UK: Wiley.

Sinkovics, R. R., Stöttinger, B., Schlegelmilch, B. B., & Ram, S. (2002), Reluctance to use technology-related products: development of a technophobia scale. *Thunderbird International Business Review*, 44(4): 477-494.

Solomon, M. R. (2004). *Consumer behavior: Buying, having and being*. Upper Saddle River, NJ: Pearson Education.

Song, J., & Kim, Y.-J.(2006). Social influence process in the acceptance of a virtual community service.*InfSyst Front*, 8: 241–252.

Soutar, G. & Monroe, G. (2001).Rasch modeling: an alternative to summated scales. *ANZAM* (*Australia New Zealand Academy of Management*) *Conference 2001*: Auckland, NZ.

Stafford, T. F. (2001). *Motivations related to consumer use of online services*. Ph.D. dissertation, The University of Texas at Arlington, United States -- Texas. Retrieved July 10, 2010, from ABI/INFORM Global. (Publication No.AAT 3035708).

Steiger, J. H. (2007). Understanding the limitations of global fit assessment in structural equation modeling. *Personality and Individual differences*, *42*(5), 893-898.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate behavioral research*, *25*(2), 173-180.

Suki, N. M. (2011). Factors affecting third generation (3G) mobile service acceptance: evidence from Malaysia. *Journal of Internet Banking and Commerce*, 16(1): 1-12

Sun, H., & Zhang, P. (2006).The role of moderating factors in user technology acceptance.*International Journal of Human-Computer Studies, 64*, 53-78.

Sweeney, J. C., &Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of retailing, 77*(2): 203-220. http://dx.doi.org/10.1016/S0022-4359(01)00041-0

Sykes, T. A., Venkatesh, V., &Gosain, S. (2009). Model of acceptance with peer support: a social network perspective to understand individual-level system use. *MIS Quarterly*, 33(2): 371–393.

Tabachnik, B. G., &Fidell, S. L. (2007).Discriminant analysis. *Using multivariate statistics. Boston: Pearson Education Inc*, *201*(3), 377-438.

Taylor, S. & Todd, P. A. (1995).Understanding information technology usage - a test of competing models.*Information Systems Research*, 6(2): 144-176.

Teo, T. S. H., &Pok, S. H. (2003).Adoption of WAP-enabled mobile phones among internet users.*Omega, 31*, 483-498. http://dx.doi.org/10.1016/j.omega.2003.08.005

Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: a meta-analysis of findings. *IEEE Transactions on Engineering Management*, 29(1), 28. Retrieved July 10, 2010, from ABI/INFORM Global. (Document ID: 1116222).

Ullman, M. T. (2001). The neural basis of lexicon and grammar in first and second language: The declarative/procedural model. *Bilingualism: Language and cognition*, *4*(2), 105-122.

Vagias, W. M. (2006). *Likert-type scale response anchors*. Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation & Tourism Management.Clemson University.

Venkatesh, V. (2000). Determinants of perceived ease of use: integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, 11(4): 342-365. Retrieved July 10, 2010, from ABI/INFORM Global. (Document ID: 66867046).

Venkatesh, V. & Davis, F. (1996). A model of the antecedents of perceived ease of use: development and test. *Decision Science*,27: 451-481.

Venkatesh, V., Morris, M. G., & Ackerman, P. (2000).A longitudinal field investigation of gender differences in individual technology adoption decision-making process.*Organizational Behavior and Human Decision Processes*, 83(1): 33-60. DOI: 10.1006/obhd.2000.2896

Venkatesh, V. Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly*, 27(3): 425-478. Retrieved July 10, 2010, from ABI/INFORM Global. (Document ID: 420086661).

Vrontis, D., Thrassou, A., &Lamprianou, I. (2009).International marketing adaptation versus standardisation of multinational companies.*International Marketing Review*, 26(4/5): 477-500. DOI: 10.1108/02651330910971995

Wang, Y.S., Wang, Y.M., Lin, H.H., & Tang, T.I. (2003). Determinants of user acceptance of Internet banking: An empirical study, *International Journal of Service Industry Management*, 14(5),501-519.

Wang, H.-Y., Liao, C., & Yang, L.-H. (2013). What affects mobile application use? The roles of consumption values.*International Journal of Marketing Studies*, 5(2): 11-22. DOI: 10.5539/ijms.v5n2p11

Wood, R. & Bandura, A. (1988).Social cognitive theory of organizational management.*Academy of Management Review*, 14(3): 361-384.

Wu, J.-H., & Wang, S.-C. (2005). What drives mobile commerce? An empirical evaluation of the revised technology acceptance model.*Information and Management*, 42: 719-729.

Xu, Y., Gong, M., & Thong, J. Y.L. (2006). Two tales of one service: user acceptance of short messaging service (SMS) in Hong Kong and China. *Journal of Policy, Regulation and Strategy for Telecommunications*, 8(1): 16-28.

Yang, K., & Jolly, L. D. (2009). The effects of consumer perceived value and subjective norm on mobile data service adoption between American and Korean consumers. *Journal of Retailing and Consumer Services,* 16(6): 502-508. http://dx.doi.org/10.1016/j.jretconser.2009.08.005

Yi, M., Jackson, J., Park, J., & Probst, J. (2006). Understanding information technology acceptance by individual professionals: towards an integrative view. *Information and Management*, 43: 350-463. DOI: 10.1016/j.im.2005.08.006.

Zarmpou, T., Saprikis, V., Markos, A., &Vlachopoulou, M. (2012).Modeling users' acceptance of mobile services.*Electronic Commerce Research,* May, 12(2): 225-248. DOI: 10.1007/s10660-012-9092-x

Zhang, J., & Mao, E. (2008).Understanding the acceptance of mobile SMS advertising among young Chinese consumers.*Psychology & Marketing, 25*(8): 787-805. http://dx.doi.org/10.1002/mar.20239