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Examining Predictors and Mediators of Vulnerability to Telecommunications Fraud among Senior Citizens in Taiwan

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Examining Predictors and Mediators of Vulnerability to Telecommunications Fraud among Senior Citizens in Taiwan

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Abstract

Advances in telecommunications technologies such as the online voice and video calling, smart phones, and micro messaging service have not only made life easier for millions of users, they also strengthened their social ties and improved their psychological well-being. On the other hand, potential risks of being defrauded go hand in hand with the social and psychological benefits of advanced telecommunications technologies in the mobile era. To respond to the pressing need for a better understanding of how fraudulent telecommunications occur, this study seeks to examine predictors and mediators of the vulnerability of seniors to telecommunications fraud with a focus on the role of calling behaviors, social presence, trust, perceived dependence, and perceived importance in telecommunications technology. Results show that 4 factors play essential roles in telecommunication among seniors. Implications of the findings for telecommunications policymaking are discussed.

Keywords: telecommunications fraud, telephony, mobile phones, text messages, social presence, trust, senior citizens, Taiwan

Examining Predictors and Mediators of Vulnerability to Telecommunications Fraud among Senior Citizens in Taiwan

1. Introduction

Advances in telecommunications technologies such as the online voice and video calling, smart phones, and micro messaging service, i.e. Line, have not only made life easier for millions of users, they also strengthened their social ties and improved their psychological well-being (Wei & Lo, 2006). Those benefits were documented in the interpersonal communication and personal psychology (Ling, 2008) thanks to the attributes of mobile phones, such as mobility and instant accessibility (Leung & Wei, 2000). Previous research has also found that the elderly is positive in their attitudes about mobile phone use. For those senior citizens, having a mobile phone is critical in acquiring safety assurance and gaining instant access to family members in case of emergencies (Ling, 2004). In addition, the elderly, many of them live alone or in assisted living facilities, tends to enjoy mobile telephony for the benefit of live supportive talks, and chat with their friends or families (Ivan & Fernandez-Ardevol, 2013).

With the booming of information and communications technology and the mobile telephony adoptions, calling behaviors have become a ritual activity in daily life and a way to connect with others has become a global phenomenon. However, potential risks of being defrauded, unfortunately, go hand in hand with the social and psychological benefits of advanced telecommunications technologies. Telephony frauds are rising all over the world. In fact, the use of telecommunications technology to commit various forms of fraud on senior citizens is increasing in a number of Asian countries. In Taiwan, statistics compiled by the authorities showed that as many as 70% of senior citizens reported to have received fraudulent calls in 2015; nearly half of telecommunications fraud victims were defrauded by calls faking emergency or a family member in desperate situations crying for help, such as a son or daughter was kidnaped (Huang, 2016).

Although an increasing number of senior citizens fell victims to telecommunication frauds, it is unclear what are the main factors making them vulnerable of fraudulent telecommunications. What is more, the literature lacks empirical research. To fill the void, the present study proposes a theoretical model to

understand how fraudulent telecommunications occur among the elderly. Specifically, the study seeks to examine predictors and mediators of the vulnerability of seniors to telecommunications fraud with a focus on the role of calling behaviors, social presence, and trust in telecommunications technology.

In addition to filling a void in the literature, results of this empirical study in Taiwan will have important implications for public policy-making with regard to the protection of senior citizens against rising telecommunications fraud.

2. Literature review

2.1. Calling as ritual behavior

Taiwan is one of the Asian countries with high adoption rate of the mobile phone. According to the estimation of eMarketer, the mobile population in Taiwan is over 100%, among which 73.4% were smart phone users. The omnipresence of the mobile phone makes Taiwan a most mobile-dominant country in the world (eMarketer, 2016). Another industry report by Foreseeing Innovative New Digiservices (FIND) reveals that the usage of smart phone in those aged group above 55 is growing fast; 57% users report that they use mobile phone at least five days per week (Tu, 2016). In other words, the use of mobile phone among the elderly has become a ritualized activity in their daily life. Past research shows that use and gratification theory and media habits are the two main theories that shed light on ritualized calling.

From a motivation perspective, previous research has applied the use and gratification theory to investigate the calling behavior. O'Keefe & Sulanowski (1995), who used telephone interviews to examine the relationship between motivation and calling pattern of landline use, found that gratifications such as social, entertainment, and instrumental motivations, were the strongest predictors that were positively related to the numbers of calls made and received. In other words, with the fulfillments of social and instrumental needs, people tend to have formed frequent calling behaviors.

From the media habit perspective, repeating media consumption behaviors will lead to forming the dependence of specific media habits, which are spontaneous and automatic responses to stimuli (LaRose, 2010). Habits offers an insight into the social process of mobile communication (Campbell, Ling, & Bayer, 2014). Long-term and high frequency of calling behaviors will easily become a habit in daily life, especially with the attributes of mobile phone which is personal, ubiquitous, and immediate.

It can be argued that the habitual use of mobile phone, which is innately the same as landline use, affect user responses to different personal communication situations among one's social networks with strong and weak ties. Some of the calls may be highly personal and intimate. It is plausible that those who commit telecommunications frauds take advantage of this sort of habitual calling. To explore this plausibility, the study is to examine the effects of calling behaviors when people face the fraudulent calling circumstances. Drawing on literature of attributes and perceptions of the telephony, the study focuses on four key concepts in the interpersonal communication, including social presence (Short, Williams, & Christie, 1976; Biocca & Harms, 2002; Biocca, Harms, & Burgoon, 2003), perceived trust in communication technology (Weisberg, Te'eni, & Arman, 2011), dependence on telephony, and the perceived importance of staying connected via telephony (Wei & Lo, 2006).

2.2. Connecting social presence, trust, and dependence with calling behavior

Compared to the telepresence, social presence is not only just a sense of being there, but an individual's perception of being together with another (Short et al., 1976; Biocca et al., 2003). How people evaluate the sense of being together when they interact with another person, especially in the mediated communication via the telephony? The literature (Short et al, 1976) suggests that physical and psychological cues in telecommunications are the main sources to estimate how close and vivid in telephone conversations, (how one feels that calling is just like talking to a real person face-to-face).

According to Biocca et al. (2003), three essential dimensions were found in the social presence theory. First, based on the sensory motor approach and mutual awareness from Goffman (1959), *co-presence* means that the interaction between two individuals, which is a continued process in the same time and place, involves co-location and co-awareness. Individuals can truly believe the existence of another and therefore are able to interact with. Second, during the interaction, *psychological involvement* increases the understanding of each other by the response of intimacy and immediacy. The third dimension is the *behavioral engagement*. In the interactive situation, people will engage more through synchronized behaviors. For example, mobile telephony, especially voice communication, and texting behaviors, which are involved highly symbolic and quickly response in verbal interaction, have demonstrated

their effectiveness in user's experiencing of social presence (DuVall, Powell, Hodge, & Ellis, 2007).

In computer-mediated communication, social presence theory has been used to account for interpersonal communication (Gunawardena, 1995), which includes those via mobile phones, the internet, social media, and online learning. Applying the concept of social presence Pittman and Reich (2016) examined the relationship between social media and loneliness. Their results showed that frequency of image-based social media use, i.e., Instagram, will decrease the loneliness via perceived social presence, which means the more social media use, the higher level of perceived social presence. Moreover, the concept of social presence was expanded to the area of gaming. For example, De Kort, IJsselsteijn, and Poels (2007) investigated the perceived presence in gaming experience and found out that the frequency of play is positively related to player's sense of social presence.

Regarding to the degree of social presence, landline and mobile phone are mainly similar, although the 3G mobile phones offered more services such as texting and mobile apps. Landline is more used in family context and oldest dyads (on average, above 51 years old), whereas mobile phones can not only keep connected with family but also maintain the privacy (Ishii, 2006) with multiple service. In the context of fraudulent telecommunications, people who are targeted will receive fraudulent phone calls, both landline and mobile phone, and as well as the texts and instant messages from mobile devices. Therefore, calling behaviors will include landline and mobile phone use in this study.

Based on the review concerning the relationship between media use and social presence, the first hypothesis was proposed:

Hypothesis 1. The more senior citizens make and receive phone calls/texts, the higher their level of *perceived social presence* of telephony.

As a construct, trust can be viewed as a personal attribute or a kind of characteristic. This micro-level of trust is related to the individual's behaviors (Ebrahimpour, Khaleghkhah, & Sepehri, 2012). More importantly, trust is a crucial factor in new technology adoption and media use behavior, especially in e-commerce (Weisberg, Te'eni, & Arman, 2011), i.e., online shopping, online banking, and mobile

application transactions. Bahmanziari, Pearson, and Crosby (2003) analyzed features of new technology and trust in the decision making process, and they found that trust is a strong predictor of adoption decision as well as the decision to purchase new technology products. Similar results were reported research on mobile commerce — trust has a positive impact individual's attitudes toward using M-commerce and behavioral intention to engage in M-commerce transactions (Lee, 2005).

In the context of media use and trust, Jakob (2010) examined the use of media and the level of trust in mass media. His findings indicated that frequency of media use was related to trust in media, which means heavy viewers had higher level of trust in specific media. Therefore, trust not only plays an important role in affecting media use, but also has implications for user's general trust toward media or the target. That is, trust extended to a firm or a person.

Past literature suggests that trust transfer captures the notion of a trust extension Stewart (2003) examined the trust transfer phenomenon and proposed a trust transfer framework based on changing in sources or contexts of communication. To illustrate, trust can be transferred from one person to another in the persuasive situation (Ogbanufe & Kim, 2015), which leads people to reduced uncertainty and decreased the fear of unreliable targets, such as a company or a person (Blau, 1964). Trust shifts toward Web-based retailers may be based on the trust of traditional shopping channels. If the web page of an retailer shows more cues linked to physical shopping outlets, people will likely induce more trust to the online web and having a higher intention to purchase products online from the online shopping site.

Ogbanufe and Kim (2015) adopted the trust transfer theory to investigated why people still get malware attacks despite the warning constantly shows up on their computer screens. The results revealed that trust and familiarity are the key factors affecting people to click-through on the web site. Additionally, Sharma, Menard, and Mutchler (2017) examined trust in social media commerce and used two types of trust transformations, trust in media and trust in target, to understand the role of trust in consumers' decisions that trust in the Internet and trust in companies are the determinants of purchase intentions.

Informed by the trust transfer theory, it can be argued that trust transfer is applicable to calling behavior, especially familiarity of calling behaviors. That is, trust in one's personalized phones will be positively related to frequency of calling

behaviors. To examine the relationship between frequency of calling and perceived trust of telephony, the second hypothesis was formulated:

Hypothesis 2. The more senior citizens make and receive phone calls, the higher their level of *perceived trust* in telephon

With the high frequency of calling behaviors in one's daily life, no matter it is from the landline and mobile phone, telephony use sooner or later becomes a ritualized habit. From the perspective of media dependency theory, the use of certain form of media reflects people's preference in media choice and dependence on the chosen media, which fulfill the needs of communication or maintain the relationship with others,.

From the interpersonal communication point of view, using mobile phones has become one of users' daily behavior to satisfy the need to belong and social interaction (Jin & Park, 2010). Igarashi, Motoyoshi, Takai, and Yoshida (2008) conducted a survey among the Japanese high-school students to understand the text-message usage and self-perception of dependency on texting. The result showed that there is a strong and positive relationship between self-reported dependency and the frequency of text-messages sending. In addition, from the relationship maintenance aspect, telephone helps one to maintain their social connection (Wei & Lo, 2016). Landline phone can be seen as a useful channel to maintain the relationships with kin and neighboring ties, whereas mobile phone is equally useful for maintain the contacts with kin ties (Boase, 2008).

In sum, the literature suggests that habitual calling behavior tends to form the preference toward specific media, which is applicable to calling. With the fulfillment of belonging, and communication, users can have dependence of telephony through high frequency of telephony use. Accordingly, calling behaviors viewed as the cause of perceived dependence--the more calling, the more perceived dependence on the telephony. The hypothesis 3 was proposed as follow:

Hypothesis 3. The more senior citizens make and receive phone calls, the higher their level of *perceived dependence* on the telephony.

2.3. *Perceived importance of the telephone*

The mobile phone enables people to stay connected with other anywhere any time. which has effects on has one's psychological well-being. Wei & Lo (2006) used the gratification approach to understand the motivations of mobile telephone use and the effects of the use on individual's social relations. According to their findings, social utility and affection were the significant predictors of making social calls. Also, mobile phone owners tend to demonstrate frequently and longer call behaviors.

Wei and Lo's (2016) study shows that social utility and the affection could be seen as mechanisms of perceived importance of telephone. With the strong need for social connectivity, users will likely view calling as essential activities in daily life. To build a theoretical model for explaining the calling behavior in tele-fraud situations, perceived importance of telephone to stay connected was also examined in this study in addition to the effects of social presence, trust, and perceived dependence of telephony that three more hypotheses were developed to examine the predictors of perceived importance of telephony for social connectivity:

Hypothesis 4. The more **social presence** in telephony, the more senior citizens will attach a greater **perceived importance** to telecommunications to stay connected.

Hypothesis 5. The more **trust** in telephony, the more senior citizens will attach a greater **perceived importance** to telecommunications to stay connected.

Hypothesis 6. The more **dependence** in telephony, the more senior citizens will attach a greater **perceived importance** to telecommunications to stay connected.

2.4. *Calling behavior and experience of being hit by fraudulent telecommunications*

Finally, the level of perceived risk is determined by the perceive importance of telephone, such as the desires for communication and connectivity. However, the perceive importance of telephone dose not always have advantages but disadvantages. Indeed, telephone use gratified individual's instrumental and psychological needs. It still causes poetical risks. Nelson, Atchley, and Little (2009) found that perceived importance of a conversation is positively related to frequency of talking on a mobile phone while driving. That means perceived importance overweighs perceived risk.

Putting in the context of victimization to telecommunication frauds, users may underestimate the potential risks when receiving calls. The last hypothesis states that one's alertness to tele-frauds will decrease with the frequency of calling behavior. But the higher the perceived importance of telephony, the higher the risk.

Hypothesis 7. The more **perceived importance** of staying connected via telephony, the more senior citizens will have a greater likelihood of experiencing telecommunications frauds.

2.5. Research model

Social presence and trust can be seen as the role of mediator. Weisberg, Te'eni, & Arman (2011) examined the relationship between past online purchase and purchasing intentions. Past behavior will affect future purchasing intention, and social presence and trust have the partial mediation effects intention to purchase in the future. In line with three theoretical approaches, we examine the mediating effect of social presence, trust, perceived dependence, and perceived importance of staying connected via telephony on telecommunications fraud experience.

The conceptual model of the study draws on theories of attributes and perceptions of the telephony, including social presence, perceived trust, dependence, and perceived importance of staying connected via telephony. As illustrated in Figure 1, the model examines the mediating role of social presence, trust, dependence, and importance on telecommunication fraud experiences.

Figure 1

3. Methods and Data

Testing of the hypotheses rely on data collected from a survey of senior citizens in Taiwan. Snowball sampling was used in drawing the sample. The self-administrated survey was conducted in a five-month period from October 15 2016 to March 14, 2017. A total of 383 adults aged 55 or above participated in the survey. Of the sample, the average age is 67.8 (SD = 7.7), with a range from 56 to 97. More female (59.8%) than

male (40.2%) were in the sample. The average year of landline use was 32.94 (SD = 12.84), whereas the average year of mobile phone use was 14.84 (SD = 8.79).

Besides, the calling behavior in the sample shows that the average calls made on a typical day was 5.96 (SD = 5.32) and 51.33% calls made were to family (M= 3.06, SD = 1.83). Moreover, the receiving calls on a typical day was 6.48 (SD = 6.90) and 45.85% calls received were from family (M= 2.97, SD = 1.94). Whenever in calls made or received, it was clear that family members were the main contacts in the senior's daily life. As to the texting messages sent and received, the average of text-messages sent on a typical day was 3.97 (SD = 9.16), whereas the average of texting messages received was 6.07 (SD = 11.47). For senior citizens in Taiwan, they tend to receive more texting messages than sending them.

3.1. Measures and scale

General calling behavior was defined as the extent to which users use landline and mobile phone for voice calling and message texting, both included sending and receiving. Respondents were requested to report the number of calls made and received on a typical day, and were then asked how many of the calls made to family and calls received from family. Considering the rise of telecommunication fraud in text-message, the everyday text-messages sent and received were included in the questionnaire.

Social presence was measured with a modified version of Gefen and Straub (2004) for e-commerce and Mäntymäki and Salo (2010) social presence scale for social virtual world. Items were adapted to reflect the focus of this study on telecommunications. On a five-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), respondents were asked to respond to the following statements: When answering a call/making a call, I felt... "I felt callers' presence on the other end of the line," "I felt people being present behind the call," "I felt the phone makes caller available and paying attention to me," "I felt there is a sense of human contact in social interaction on the telephony." Result of internal consistency shows that the four items were reliable ($\alpha = .853$).

Trust in the phone was measured by adapting the measurement used by Weisberg, Te'eni, and Arman (2011). In order to measure the core concept of trust, three items were created to measure trust in the phone. Respondents were asked to state their agreement with the follow statements: To what extent do you say you that... A five-

point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), was used. “I felt that I trust in social interaction in general via the telephone,” “I felt that I can trust in the telephone as an efficient means of offering help during emergency,” “I felt that I can trust when providing personal info to callers on my home phone.” After conducting the reliability analysis, the third item was deleted to increase the scale reliability ($\alpha = .5$).

Perceived dependence of telephone was measured with a scale developed by Jin and Park (2010). Items measured perceived dependence with five-point Likert-point from strongly disagree (1) to strongly agree (5). Respondents were asked as to indicate their agreement with these statements: “Calling is my daily routine,” “I feel less lonely when maintaining contacts with my family/friends via the telephone,” “I would feel out of touch when I haven’t talked to my family/friends on the phone for a while,” “I would be sorry if my telephone is broken.” The measure of four items in this study was reliable ($\alpha = .78$).

Perceived importance of staying connected via telephone was measured using a modified scale of Wei and Lo (2006) for social connectivity, including social utility and affection. Items were measured with five-point Likert-point from strongly disagree (1) to strongly agree (5). Also, in order to measure the concepts in tele-fraud situations, items were modified to capture perceived importance of staying connected via the telephone. (e.g., “I would feel perceived importance of keeping in touch with strong ties via home telephone,” “I would feel perceived importance of social interaction via telephony,” “I would feel relief of boredom when I communicate with others via telephone.” “I would feel relief of isolation when I communicate with others via telephone.” “I would keep being connected with others when I communicate via telephone.”) The five items were reliable ($\alpha = .82$).

Experience of Telecommunications frauds was defined as the extent to which individual have the experience of receiving fraud calls, regardless of landlines or the mobile phone, or voice calls or texting messages. The actual question measuring telecommunication fraud experience read as “Did you ever receive scam calls in the past 6 month,” If yes, they were asked to indicate “How many times have you received scam calls.”

The demographics of respondents were included as well, i.e., gender, age, household size, residential status, family income and education.

4. Results

Based on descriptive results, more than half (52.7%) of the surveyed senior citizens had received scam calls; one third of the sample (39.3%) received fraudulent mobile phone calls. In addition, one-third (31.1%) had received fraudulent texting messages. As many as 12.5% reported that they were actually defrauded by the fraudulent calls or texting. Among these telecommunication fraud victims, 85.4% reported that they had been a victim of fraud at least once or twice.

To test the seven hypotheses, correlation, regression, and path analyses were run. First, the results of correlation of all variables with experience in being defrauded by phone are presented in Table 1.

As predicted in Hypothesis 1, results of a correlation analysis show a significant and positive relationship between calling behavior and perceived social presence of communication via the telephone ($r = .14, p < .01$). Also as expected in Hypotheses 2 and 3, the more senior citizens made and received phone calls/texts, the higher their level of perceived trust of the telephone ($r = .17, p < .01$) and perceived dependence on the telephone ($r = .30, p < .01$).

For the Hypotheses 4, 5, and 6, the correlational results indicate that a significant and positive relationship between three variables and perceived importance of the telephone. That is to say, the greater the social presence ($r = .51, p < .01$), trust in the telephone ($r = .56, p < .01$), and perceived dependence on telephone ($r = .65, p < .01$), the greater perceived importance to use the telephone to stay connected among the senior citizens. However, hypothesis 7 was not supported. The correlation between perceived importance to stay connected and experience of telecommunications frauds was not significant ($r = .65, p > .05$).

Table 1

In order to examine the multifactor explanations of model proposed in this study, results of a regression analysis show that three predictors were significant for the perceived importance of telephony; they were social presence ($\beta = .15, t = 3.29, p < .001$), trust in telephone ($\beta = .27, t = 6.04, p < .001$), and perceived dependence of the telephone ($\beta = .50, t = 13.23, p < .001$). According to the regression results, these three

factors have significant relationships perceived importance and perceived dependence of the telephone is the strongest predictor. The more dependence of the telephone individual perceived, the higher perceived dependence. Together, they accounted for 55.3% of variance in perceived importance of telephony ($F = 158.81, p < .001$). Results are summarized in Table 2.

Table 2

Moreover, to test the mediating effects of social presence, trust, perceived dependence, and perceived importance of staying connected on defrauding experience, a path analysis was pursued. It used the Amos with 1,000 bootstrap samples and 95% confidence intervals to build significant paths. Results revealed that the framework applied to telecommunication fraud resulted in five paths. It was showed that calling behavior was associated significantly to both social presence (path coefficient = .18, $p < .001$) and perceived dependence (path coefficient = .21, $p < .001$). In addition, social presence (path coefficient = .16, $p < .001$), trust (path coefficient = .30, $p < .001$), and perceived dependence (path coefficient = .56, $p < .001$). were associated significantly to perceived importance of the telephone to stay connected.

Figure 2

5. Conclusions and discussion

5.1 *The psychological issues among seniors*

Given the rise in telecommunications frauds, especially increasing number of defrauding victims among home-alone seniors, it is theoretically and practically important to examine factors that affect being a victim of fraudulent telecommunications. Drawing on the theories of social presence and trust in mediated communications, this study proposed a framework to understand how these psychological variables played a role in senior citizen's experience of being a victim of telephone frauds. The proposed model was empirically testing with data collected from 384 senior citizens in Taiwan. Results showed that tele-fraud is prevalent that half of the respondents have received scam phone calls. One-tenth reported they were defrauded by

the fraudulent calls or texting. Furthermore, correlational results show that the proposed model is partially supported. Calling behaviors are correlated respectively of social presence, trust, and dependence on the telephone. That is to say, the more respondents made calls and texted more frequently, the greater their social presence, trust in the telephone, and perceived importance of the telephone to maintain social interaction.

In addition, with the needs of social utility and affection (Wei & Lo, 2006), the perceived importance to stay connected with others via telephony is found a critical mediating variable in the model. The greater social presence, trust, and dependence on the telephone, the greater the perceived importance of the telephone to stay connected. However, the relationship between perceived importance and telephone fraud experience was not significant. The model was partially supported.

In sum, social presence, trust, perceived dependence, and perceived importance of telephone are four psychological factors to understand why seniors would be seen as targets and are easy to fall in to a trap by tele-scammers. The main reason of dependence in telephone is the fear of cutting off the communication with others, that is the need of stay connected push them to form the dependence toward telephone. James, Boyle, and Bennett (2014) examined the correlations of susceptibility to scams among the older and found out both lower well-being and less social support caused the greater vulnerability to scams. With the lacks of connection with others, scammer would easily take the advantages from seniors without supports.

5.2 Limitation and future research

The relatively small sample size may be a factor for this non-significant results. Also, the unwillingness to report actual experience may be another reason. because victims may feel it is a shame to admit it and being embarrassed when asked to report it (Cross, Richards, & Smith, 2016).

Nevertheless, the phenomenon of telecommunications frauds needs more systematic research to for the benefit of public policy-making to the protection of senior citizens against rising telecommunications frauds. Since calling and texting activities are seen as daily and social interaction with close ties, family, kin, and friends, future research may include a social network perspective by examining the effects of heterogeneous or closure network on the telephony behavior.

Finally, to capture the effective outcomes in telecommunication frauds, the questions of actual fraud experience need to be created with caution and encourage participants to answer, such as the likelihood of answering likelihood in being hit by scams or reaction to suspicious calls.

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Table 1. Means, standard deviations, and correlations

	Mean	SD	CB	SP	Trust	PD	PI
Calling behavior	4.76	4.70					
Social presence	3.42	0.95	.142**				
Trust	3.81	0.82	.167**	.631**			
Perceived dependence	3.30	0.99	.296**	.387**	.420**		
Perceived importance	3.72	0.79	.249**	.505**	.562**	.650**	
Fraud experience	1.41	0.65	-0.053	-0.209	-0.057	-0.06	-0.087

Note: * $p < .05$; ** $p < .01$; $n = 383$

Table 2 *Regression results for perceived importance of telephony by social presence, trust in telephone, and perceived dependence*

DV perceived importance	Unstandardized coefficients		β	<i>t</i>	<i>P</i>	Multi- collinearity	
	B	S.E.				T.V.	VIF
(Constant)	0.99	0.14		7.25	0.00		
Social presence	0.12	0.04	0.15	3.29	0.00	0.59	1.70
Trust	0.26	0.04	0.27	6.04	0.00	0.58	1.73
Perceived dependence	0.40	0.03	0.50	13.23	0.00	0.82	1.22
Total model	$R^2 = .557, \Delta R^2 = .553$						
	$F(3, 382) = 158.81 (p = .000)$						

Figure 1. *Research framework of telecommunication fraud*

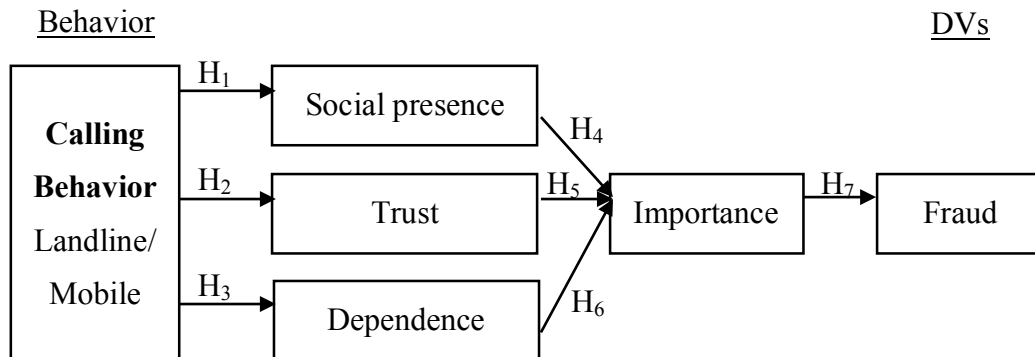
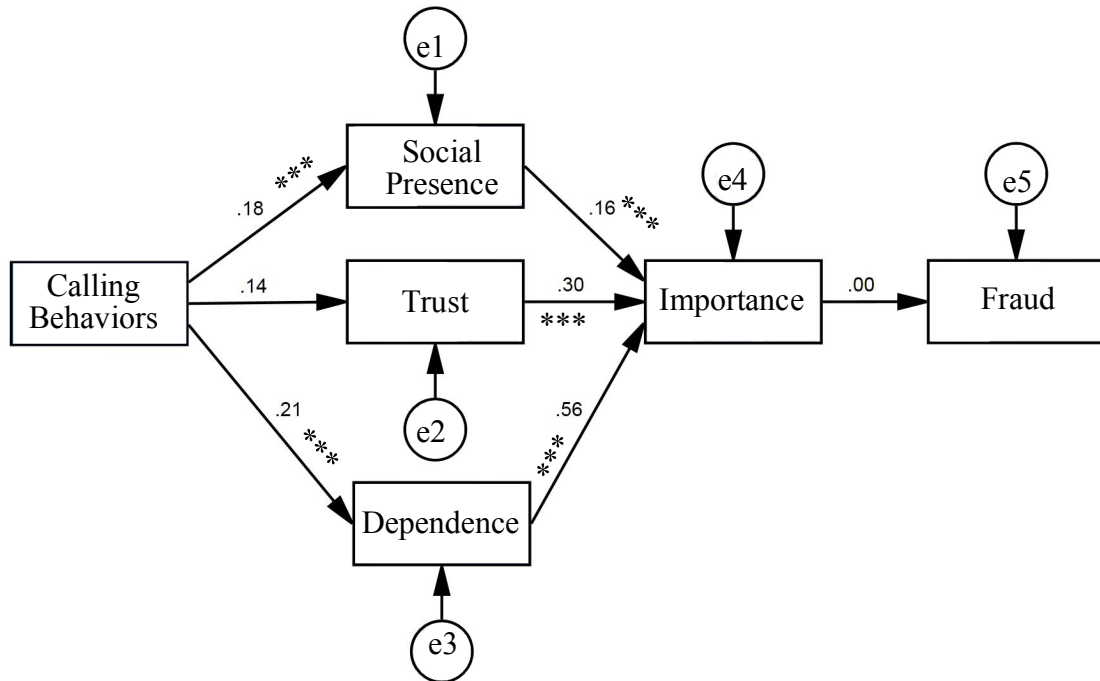


Figure 2. The path analysis of Research framework



Note: *** $p < .001$