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User Adoption of Cell Phones for Smoking Cessation: Does Attitude Towards Smoking Matter?

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Abstract
The objective of this study is to investigate the role of attitude towards the activity targeted by the technology in a perceived risk-motivation information technology adoption model. A theoretical model was developed and tested empirically with 170 respondents from the UK for the case of using cell phones in smoking cessation interventions. Results show attitude towards smoking had a negative effect on the perceived risk and no significant effect on motivation.

Keywords: User adoption, Cell phone, Smoking cessation, Attitude, Perceived risk

1 Introduction

Quitting smoking is one of the best things people can do to improve their lives and health (Health Canada, 2009). Consequently, individuals and society became more and more concerned with helping smokers cease this habit; there has been various initiatives integrating in the unanimous societal efforts to encourage smokers to quit smoking. Among these, an innovative approach of recent date is to use mobile information technology (IT) to provide individual support to people willing to quit smoking (Møldrup, 2007). Cell phones are particularly interesting due to their recognized advantages in terms of anytime-anywhere capabilities, popularity and individual use.

Before investigating the feasibility and benefits of using cell phones in smoking cessation programs or the business aspects of such initiatives, a key question regards targeted user perceptions. It is well-known from technology adoption literature in information systems (IS) that user perceptions and views are a key element for the success of any IT deployment (Venkatesh, Speier, & Morris, 2002). If users do not see the usefulness of an IT application or if they do not see it as easy to use or enjoyable, that technology has poor chances of success. As a result of the concerns on the consequences of user negative perceptions of the technology use, a number of technology adoptions studies in IS have been including factors

such as perceived risk of using IT or resistance to adoption of IT (Featherman & Pavlou, 2003; Lapointe & Rivard, 2005).

While the way to measure and incorporate resistance to IT use in technology adoption models is still under debate, an additional question that is being discussed regards the influence in the adoption equation of user *a priori* view on the activity targeted by the technology. For instance, in the case of using cell phones to help individuals quit smoking, if individuals have a positive view on smoking, presumably this would undermine their overall intention to use an IT application to help them quit smoking. These views were discussed in earlier studies as an *attitude towards the activity* targeted by the IT application (Cocosila & Archer, 2009; Cocosila, Archer, & Yuan, 2009). It should not be confused to the attitude regarding the IT or the IT application that was included in earlier studies in the Technology Adoption Model (Davis, 1989).

As the role of user views on the activity targeted by the technology is under-researched in the available literature, this study attempts to fill that void. For that, an empirical study involving 170 subjects and incorporating attitude towards smoking in a study examining user adoption of cell phones in smoking cessation programs was conducted in the UK. This paper reports on that study as follows: next two sections present the theoretical background followed by the development of the research model and hypotheses. Next, research methodology and main findings are presented. The paper concludes with a discussion and conclusions section.

2 Theoretical Background

A search of IS literature shows a solid body of IT adoption studies. Various models and theories examining factors that would make individuals to accept and use a technology have been proposed and successfully tested. One of these is the motivational model that was first used in IS by Davis et al. (Davis, Bagozzi, & Warshaw, 1992) and further validated by the studies of Venkatesh et al. (Venkatesh & Speier, 1999; Venkatesh et al., 2002) and Igbaria et al. (Igbaria, Parasuraman, & Baroudi, 1996). This is a parsimonious model positing that the behavioural intention (BI) to use a technology has two antecedents: extrinsic motivation (EM), corresponding to a perception of usefulness of that technology, and intrinsic motivation (IM), corresponding to an enjoyment when using that technology. Motivational model is suitable for examining user perceptions when discussing the use *in principle* of a technology since it captures the two broad categories of reasons to use of a technology: external to the user (extrinsic motivation to attain a certain goal or reward) and internal to the user (intrinsic reasons or motivation coming from the technology use itself).

The motivational model, as other theories and models of technology adoption, examine factors that would make users accept and use a certain IT or IT application. However, in recent years there have been growing concerns among segments of users about the IT becoming more and more costly, complicated and difficult to use or, even, intruding. Accordingly, users would perceive such negative features as obstacles to adoption. To reflect these views, concepts called resistance to adoption (Lapointe & Rivard, 2005; Lapointe & Rivard, 2006) or, more often, perceived risk of using (Cocosila, et al., 2009; Featherman & Pavlou, 2003; Pavlou, 2003) were studied.

In contrast to game theory where risk may have both positive and negative consequences, perceived risk in IS has an exclusively negative meaning. It was borrowed from consumer behaviour studies and reflects user fears on possible (yet, not necessarily real) losses or disadvantages sourcing from the use of an IT. To better capture the various types of negative perceptions of risk researchers generally agree this is a multi-dimensional construct (Lim, 2003). For instance, perceived risk in IT adoption may reflect fears of wasting money to buy a technology or subscribe for an IT service, fears of wasting time with a complicated technology, fears of sharing private data through a certain technology application, etc. Perceived risk constructs have been incorporated in technology adoption models and empirical research showed that, as expected, risk negatively affects user intention to accept a technology directly or indirectly.

In addition to the above two large categories of factors favouring and disfavouring an IT adoption respectively, previous research also discussed potential effect on these two categories exerted by some a priori user factors. One of these was called *attitude towards the activity* (Cocosila, et al., 2009) and reflects user existing perceptions on the activity targeted by the technology and *not* by the technology itself. Such factors could be very important in sensitive fields like healthcare where, for instance, if users do not perceive the necessity of a medication, this would also affect their views on the IT application designed to remind them about taking that medication. Therefore, an interesting topic of research is to see the influence of pre-existing attitudinal factors regarding an activity on the perceptions regarding the use of a technology to support that activity.

A scientific investigation of user perceptions on the use of cell phones in smoking cessation programs is an excellent opportunity to test the influence of attitude towards smoking on the two categories of factors discussed above: positive to adoption and negative to adoption. Consequently, this research formulates the following research questions:

What is the influence of motivation and perceived risk on user intention to adopt a cell phone application for smoking cessation?

What is the effect of user attitude on smoking on user intention to adopt a cell phone application for smoking cessation?

3 Model and Hypotheses Development

To investigate the influence of the opposite (i.e., positive and negative) user perceptions on the adoption of a cell phone application for smoking cessation, a theoretical model to be validated empirically is built. The model is an extension of the motivational model (containing only factors favourable to adoption) with the risk perception (hence, the factors disfavourable to adoption). Further, the model also investigates the role of attitude towards the activity (i.e., smoking) on both categories of factors above.

Consumer behaviour literature consistently shows that perceived risk has several facets (e.g. financial, time, performance, etc.). Their relative influence on the overall risk perception is influenced by the specific product/service (Conchar et al., 2004). However, due to a compensation effect, the outcome on the overall risk should be approximately similar (Stone & Grønhaug, 1993). As an example, a cheaper product implies less financial risk but higher performance risk than a more expensive product.

This study follows the example of previous IT research that considered perceived risk as a second-order construct composed through various risk facets seen as first-order constructs (Cocosila & Archer, 2009; Featherman & Pavlou, 2003). Depending on the context of this research (i.e., using cell phones to support smoking cessation of individuals willing to quit smoking) the following risk facets are considered meaningful (Cocosila et al., 2009; Lim, 2003):

- Financial risk (fear of wasting money for a non-necessary service);
- Privacy risk (fear of disclosing private data to the service provider);
- Psychological risk (anxiety about subscribing to a useless service);
- Time risk (fear of wasting time with a bothering service);
- Social risk (fear of negative reactions from family and friends if subscribing to such a service).

Taking into account the above, we hypothesize that:

H1a: Perceived financial risk is positively associated with perceived overall risk of using cell phones as a support in smoking cessation.

H1b: Perceived privacy risk is positively associated with perceived overall risk of using cell phones as a support in smoking cessation.

H1c: Perceived psychological risk is positively associated with perceived overall risk of using cell phones as a support in smoking cessation.

H1d: Perceived time risk is positively associated with perceived overall risk of using cell phones as a support in smoking cessation.

H1e: Perceived social risk is positively associated with perceived overall risk of using cell phones as a support in smoking cessation.

This study introduces as an innovative construct attitude towards the activity targeted by the technology. Previous research (Cocosila & Archer, 2009; Cocosila, et al., 2009) and theoretical reasoning show that if attitude towards the activity (hence quitting smoking in this case) is favourable, then it is more likely the users also perceive the benefits of using the technology for that activity. Further, if attitude is positive users may perceive less risk associated with the use of that technology. Accordingly, we formulate the following hypotheses:

H2: Attitude towards the activity is negatively associated with perceived overall risk of using cell phones as a support in smoking cessation.

H3: Attitude towards the activity is positively associated with extrinsic motivation of using cell phones as a support in smoking cessation.

H4: Attitude towards the activity is positively associated with intrinsic motivation of using cell phones as a support in smoking cessation.

Previous work on motivation theory and model shows that when people perceive an activity as being more enjoyable they also tend to perceive the usefulness side of that activity (Ryan

& Deci, 2000; Venkatesh et al., 2002). Therefore there is positive link between intrinsic motivation and extrinsic motivation. On the contrary, previous IS studies have shown that perceived risk has a negative effect on perceived usefulness or extrinsic motivation (Cocosila et al., 2009; Featherman & Pavlou, 2003): if people are apprehensive about some disadvantages of using a technology they tend to see less usefulness in that technology. Further, similar to consumer behaviour situations, when people perceive a risk associated with a purchase this tends to negatively influence their decision (Laroche et al., 2004). Theoretical reasoning in a parallel way leads to a negative link between perceived risk to use an IT application and behavioural intention to use that application. Consequently, we hypothesize that:

H5: Perceived overall risk is negatively associated with extrinsic motivation of using cell phones as a support in smoking cessation.

H6: Intrinsic motivation is positively associated with extrinsic motivation of using cell phones as a support in smoking cessation.

H7: Perceived overall risk is negatively associated with behavioural intention to use cell phones as a support in smoking cessation.

Previous IS research demonstrated consistently that perceived usefulness is a strong and significant antecedent of behavioural intention to use a technology (Venkatesh et al., 2002). Intrinsic motivation is also a determinant of behavioural intention, usually of a lesser importance, but not to be neglected especially when acting in combination with perceived usefulness, or extrinsic motivation (Davis et al., 1992; Venkatesh 1999). Accordingly, we propose the hypotheses:

H8: Perceived extrinsic motivation is positively associated with behavioural intention to use cell phones as a support in smoking cessation.

H9: Perceived intrinsic motivation is positively associated with behavioural intention to use cell phones as a support in smoking cessation.

4 Methodology

The research questions proposed by this research were answered following a cross-sectional fully online experiment conducted with a sample of subjects from the UK. For increased realism, participants were recruited from the panelists registered with a company conducting Web-based surveys in various countries. Interested participants were required to be at least 18 years old, smoking at least occasionally and currently using cell phones and wireless text messaging.

Subjects meeting the including conditions and consenting to participate were first presented a Web scenario on how wireless short messages (SMS) could be used to support them quitting smoking, if they would be interested in that. Thus, if they subscribed to a quit smoking support service delivered through their cell phones, they may receive funny messages of support reminding and encouraging them on their path. Messages would come at random times, one per day on average, and would be sent by health providers from a smoking cessation call centre. If willing to contact the call centre, participants were told they could do it by SMS and be answered the same way as early as possible. Participants

were provided screenshots of cell phone displays with samples of actual messages. According to the scenario, the cell phone service was to be provided for 6 months and the users were supposed to pay for their SMS activity.

After the Web scenario, participants were asked to complete an online survey on their impressions regarding cell phone use for smoking cessation. The survey contained questions to measure the multi-item constructs in the theoretical model and associated hypotheses. Items were measured with 7-point Likert-type scales adapted from validated previous research in IS (Featherman & Pavlou, 2003; van der Heijden, 2004; Venkatesh & Davis, 2000), consumer behaviour (Laroche, et al., 2004; Stone & Grønhaug, 1993) and healthcare (Horne, Weinman, & Hankins, 1999).

5 Results

A number of 300 invitations to participate in the experiment were sent to panelists all across the UK. A total of 170 valid responses meeting all the including conditions were recorded. Analyses indicated that 50.0% of the respondents were female and the average age of the sample was 41.16 years. Participants reported smoking 84.19 cigarettes per week on average and having a past of 23.91 years of smoking. In terms of cell phone and SMS experience, participants reported an average of 10.28 and 8.81 years, respectively. Regarding SMS current usage, subjects reported sending more messages per week than receiving: 57.50 on average compared to 46.08.

Subsequent data analysis was done with Partial Least Squares (PLS) due to its suitability for complex exploratory models (Bontis, Crossan, & Hulland, 2002). Further, PLS is suitable for formative indicators (Thomas, Lu, & Cedzynski, 2005). Perceived overall risk was measured as a second-order construct through a repeated indicators approach (i.e., through the indicators of the five first-order risk constructs) (Lohmoller, 1989).

5.1 Measurement Model

SmartPLS (Ringle, Wende, & Will, 2005) was used as PLS analysis software. The general approach recommended by Gefen and Straub (2005) for evaluating validity was followed closely. A first analysis of the PLS results showed Cronbach's alpha, composite reliability and Average Variance Extracted (AVE) values for all first-order constructs were above the recommended limits: 0.7, 0.7 and 0.5, respectively reliability (Bontis, 2004; Fornell & Larcker, 1981; Jarvenpaa, Shaw, & Staples, 2004). Factor loadings were generally high, above 0.7 for almost all items. These data, shown in Table 1, allow the conclusion that the constructs had appropriate reliability and convergent validity.

Item	Mean	Standard deviation	Factor loading	Error	Composite reliability (Cronbach's alpha; AVE)
PFR1	4.43	1.60	0.832	0.044	0.859 (0.763; 0.672)
PFR2	5.46	1.41	0.721	0.108	
PFR3	5.12	1.44	0.898	0.028	
PSR1	3.42	1.71	0.859	0.035	0.937 (0.899; 0.834)
PSR2	3.02	1.66	0.949	0.013	
PSR3	2.72	1.57	0.930	0.018	
PTR1	3.74	1.60	0.927	0.019	0.950

PTR2	3.52	1.69	0.940	0.019	
PTR3	3.30	1.75	0.922	0.018	
PPR1	3.65	1.66	0.917	0.020	0.912 (0.854; 0.776)
PPR2	4.02	1.67	0.919	0.026	
PPR3	3.76	1.78	0.803	0.050	
PSYR1	3.77	1.64	0.907	0.026	0.954 (0.928; 0.875)
PSYR2	3.42	1.64	0.961	0.010	
PSYR3	3.34	1.66	0.938	0.016	
EM1	3.82	1.45	0.802	0.054	0.890 (0.835; 0.672)
EM2	4.21	1.42	0.692	0.096	
EM3	3.95	1.56	0.916	0.017	
EM4	4.22	1.55	0.854	0.028	
IM1	3.85	1.38	0.899	0.024	0.910 (0.851; 0.771)
IM2	3.99	1.34	0.887	0.031	
IM3	3.38	1.41	0.848	0.051	
BI1	4.15	1.62	0.962	0.011	0.960 (0.917; 0.923)
BI2	4.14	1.62	0.960	0.015	
ATA1	4.51	1.58	0.518	0.274	0.884 (0.815; 0.667)
ATA2	6.14	1.17	0.836	0.220	
ATA3	6.02	1.28	0.939	0.180	
ATA4	5.77	1.38	0.905	0.175	

Note: PFR – Perceived Financial Risk, PSR – Perceived Social Risk, PTR - Perceived Time Risk, PPR - Perceived Privacy Risk, PSYR - Perceived Psychological Risk, EM – Extrinsic Motivation, IM – Intrinsic Motivation, BI - Behavioural Intention, ATA – Attitude Toward Activity

Table 1: Statistics of the Measurement Model

The following analysis was a test for discriminant validity. This was assessed through a visual examination of the matrix of loadings and cross-loadings of first-order constructs. Since items load more on the constructs they are supposed to load on than on other constructs, as shown in Table 2, it can be concluded that constructs have appropriate discriminant validity. Consequently, all items were retained in the measurement model and the PLS analysis continued with the structural part.

	ATA	**BI**	**EM**	**IM**	**PFR**	**PPR**	**PSR**	**PSYR**	**PTR**
ATA1	**0.52**	0.18	0.14	0.20	-0.07	-0.06	-0.02	-0.17	-0.11
ATA2	**0.84**	0.04	-0.01	-0.08	-0.16	-0.20	-0.24	-0.18	-0.17
ATA3	**0.94**	0.07	0.03	0.01	-0.18	-0.22	-0.26	-0.28	-0.24
ATA4	**0.90**	0.10	0.08	0.06	-0.17	-0.12	-0.23	-0.15	-0.16
BI1	0.14	**0.96**	0.69	0.65	-0.29	-0.24	-0.22	-0.38	-0.32
BI2	0.07	**0.96**	0.68	0.63	-0.33	-0.24	-0.15	-0.35	-0.33
EM1	0.08	0.58	**0.80**	0.51	-0.12	-0.10	-0.11	-0.30	-0.31
EM2	0.11	0.41	**0.69**	0.46	-0.18	-0.08	-0.13	-0.26	-0.22
EM3	0.05	0.64	**0.92**	0.66	-0.12	-0.11	-0.06	-0.34	-0.19
EM4	0.01	0.67	**0.85**	0.69	-0.21	-0.13	-0.09	-0.26	-0.18
IM1	0.03	0.59	0.66	**0.90**	-0.19	-0.21	-0.07	-0.31	-0.20
IM2	0.04	0.58	0.64	**0.89**	-0.18	-0.16	0.00	-0.30	-0.18
IM3	0.03	0.59	0.59	**0.85**	-0.19	-0.11	-0.05	-0.27	-0.22
PFR1	-0.17	-0.38	-0.20	-0.28	**0.83**	0.26	0.24	0.26	0.43
PFR2	-0.05	-0.11	-0.04	-0.02	**0.72**	0.16	0.12	0.08	0.15
PFR3	-0.19	-0.25	-0.18	-0.17	**0.90**	0.41	0.28	0.22	0.39

PPR1	-0.18	-0.30	-0.14	-0.24	0.37	**0.92**	0.40	0.54	0.56
PPR2	-0.15	-0.23	-0.14	-0.18	0.33	**0.92**	0.39	0.50	0.53
PPR3	-0.19	-0.11	-0.05	-0.04	0.24	**0.80**	0.39	0.42	0.45
PSR1	-0.26	-0.11	-0.05	0.00	0.29	0.36	**0.86**	0.50	0.58
PSR2	-0.23	-0.21	-0.12	-0.04	0.22	0.44	**0.95**	0.53	0.63
PSR3	-0.19	-0.21	-0.13	-0.09	0.24	0.43	**0.93**	0.50	0.63
PSYR1	-0.21	-0.39	-0.36	-0.35	0.29	0.53	0.48	**0.91**	0.59
PSYR2	-0.21	-0.36	-0.32	-0.29	0.22	0.50	0.53	**0.96**	0.58
PSYR3	-0.28	-0.31	-0.31	-0.28	0.20	0.52	0.56	**0.94**	0.59
PTR1	-0.20	-0.37	-0.28	-0.23	0.44	0.52	0.63	0.54	**0.93**
PTR2	-0.20	-0.31	-0.22	-0.22	0.43	0.52	0.62	0.59	**0.94**
PTR3	-0.20	-0.26	-0.24	-0.19	0.32	0.60	0.64	0.62	**0.92**

Table 2: Loadings and Cross-loadings of First Order Constructs

5.2 Structural Model

Structural analysis consisted in evaluating path coefficients and significance levels after running SmartPLS with a bootstrap with 200 re-samples. Results are presented in Figure 1 and Table 3.

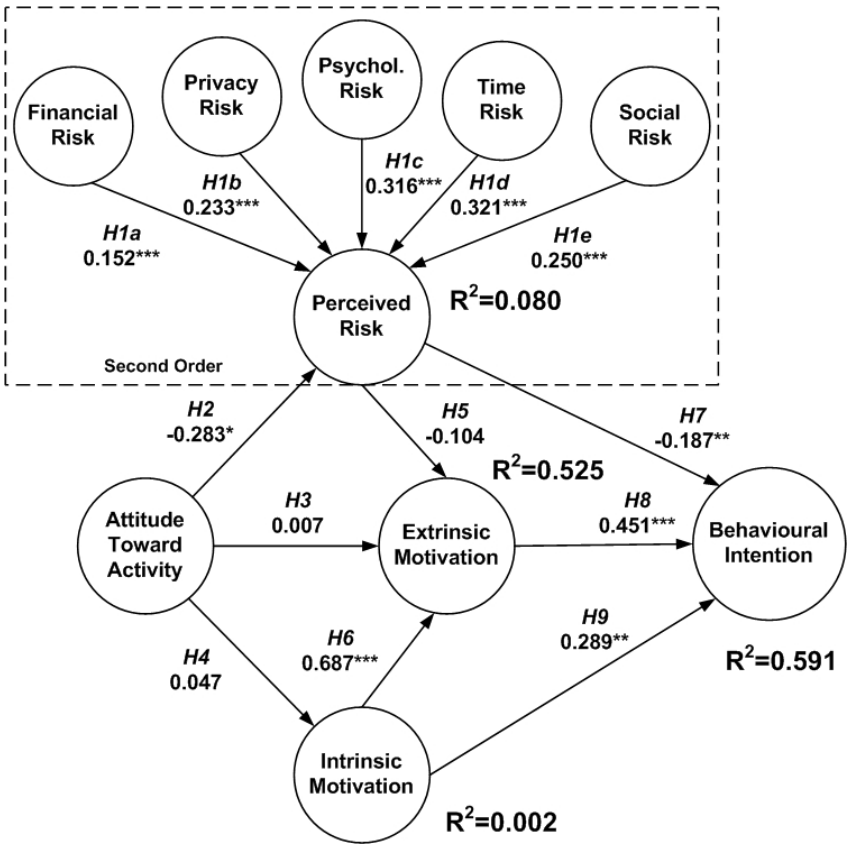

Figure 1: Structural Evaluation of the Model of Cell Phone Adoption in Smoking Cessation (Significance levels: * = 0.05; ** = 0.01; *** = 0.001)

Hypo-thesis	Path	Path Coefficient	t-Value	p-Value	Outcome

1a	Perceived Financial Risk -> Perceived Overall Risk	0.152	4.4537	<0.001	Supported
1b	Perceived Privacy Risk -> Perceived Overall Risk	0.233	9.3109	<0.001	Supported
1c	Perceived Psychological Risk -> Perceived Overall Risk	0.316	11.5485	<0.001	Supported
1d	Perceived Time Risk -> Perceived Overall Risk	0.321	13.3022	<0.001	Supported
1e	Perceived Social Risk -> Perceived Overall Risk	0.250	12.2652	<0.001	Supported
2	Attitude Toward Activity -> Perceived Overall Risk	-0.283	2.2467	<0.05	Supported
3	Attitude Toward Activity -> Extrinsic Motivation	0.007	0.0872	0.93	Rejected
4	Attitude Toward Activity -> Intrinsic Motivation	0.047	0.2784	0.78	Rejected
5	Perceived Overall Risk -> Extrinsic Motivation	-0.104	1.4574	0.14	Rejected
6	Intrinsic Motivation -> Extrinsic Motivation	0.687	12.3113	<0.001	Supported
7	Perceived Overall Risk -> Behavioural Intention	-0.187	2.7441	<0.01	Supported
8	Extrinsic Motivation -> Behavioural Intention	0.451	3.74	<0.001	Supported
9	Intrinsic Motivation -> Behavioural Intention	0.289	2.6116	<0.01	Supported

Table 3: Hypothesis Test Results

Figure 1 and Table 3 indicate that 10 out of 13 hypotheses were supported. As expected, all first order perceived risk constructs have a significant contribution to the second-order perceived overall risk. The two sides of motivation (extrinsic one, especially) are strong and significant positive antecedents of the behavioural intention and perceived risk is a negative significant antecedent. Perceived overall risk did not have a significant effect on extrinsic motivation. The only significant effect of attitude towards activity (i.e., quitting smoking) was a negative link to perceived risk.

The proposed model showed relatively high explanatory power for two of the endogenous constructs: the variance explained was R^2=0.525 for extrinsic motivation and R^2=0.591 for behavioural intention. Perceived overall risk had a much lower coefficient of determination (R^2=0.080) but small values are not uncommon in IS studies (Moon & Kim, 2001). Logically, intrinsic motivation had a coefficient close to zero since the only antecedent tested (attitude towards activity) had no significant effect.

Age, gender, smoking figures and cell phone and SMS experience and use were tested as possible control variables. SmartPLS was run for each of them. No changes in the measurement model were noticed. Hence the small increases of the variance explained for the endogenous variables recorded in some situations had structural causes only (Table 4). However, no significant path from any control variable to any endogenous construct was noticed.

Control Variable	Perceived Overall Risk	Extrinsic Motivation	Behavioural Intention
Uncontrolled model	*0.080*	*0.525*	*0.591*
Age	0.080	0.535	0.596
Gender	0.080	0.529	0.596
Years of smoking	0.088	0.532	0.591
No of cigarettes smoked	0.097	0.526	0.594
Cell phone experience	0.081	0.535	0.601
SMS experience	0.080	0.536	0.593
No of SMS received	0.082	0.531	0.595
No of SMS sent	0.081	0.530	0.593

Table 4: Variance Explained by Endogenous Constructs in the Controlled and Uncontrolled Model

6 Discussion and Conclusions

The main scope of this work has been to understand the role of attitude towards the activity in an adoption model combining positive factors and negative factors. The context of this research was the adoption of cell phones for smoking cessation. A theoretical model built by expanding the motivational model with a multi-dimensional perceived risk and having as antecedent attitude towards the activity was built and empirically tested with a sample of 170 respondents from the UK.

The first research question we posed was: *What is the influence of motivation and perceived risk on user intention to adopt a cell phone application for smoking cessation?* Similar to previous research in IS, we found that both sides of motivation have a positive and significant influence, with a stronger role for extrinsic motivation or perceived usefulness (Cocosila et al., 2009; Featherman & Pavlou, 2003): path coefficient to behavioural intention 0.451 compared to 0.289 for intrinsic motivation. This allows the conclusion that, despite the enjoyment or fun side of the SMS messaging, users saw the 'serious' side of it and judged the technology in terms of its usefulness: a support for quitting smoking. However, as results show, intrinsic motivation play a non-negligible role, consistent with previous research (Childers et al., 2001), especially through its high value and high significance path to extrinsic motivation. Therefore, developers of cell phone application for quitting smoking should take into account the enjoyment side.

Similar to some of the previous research (Cocosila & Archer, 2009), perceived overall risk had a negative influence on behavioural intention but not a significant influence on extrinsic motivation. An explanation could be that risk perceptions associated with the use of a technology are an inhibitor of using it, similar to perceived risk for an intended purchase (Laroche et al., 2004). However, the fact that quitting smoking is perceived as a preventive activity, hence of no obvious immediate usefulness, this may lead to the lack of influence on extrinsic motivation. All risk sides considered were important in the general risk perception and should be addressed in practical implementations.

The second research question we posed was: *What is the effect of user attitude on smoking on user intention to adopt a cell phone application for smoking cessation?* We found that

the only significant effect of the attitude towards smoking was on perceived risk. Hence, if people are unfavourable to smoking, they tend to see less risk in using the technology designed to help them quit smoking. The lack of implication on motivation (especially extrinsic motivation) deserves further investigation.

As virtually any similar research in information systems, this study had some limitations. The most important was the use of a convenient sample from the pre-registered panelists of a Web-surveying company. However, as these were from various demographic categories, all over the UK, this added more realism to the sample. In addition, there are no reasons to believe subjects differed from the general population meeting the conditions of this study in terms of using mobile information technology if they wish to quit smoking. For a scenario-based empirical study it is important to predict future trends based on participant current perceptions regarding the using in principle of the technology to support smoking cessation (Cocosila et al., 2009; Lee et al., 2001).

Overall, this study is one of the first empirical investigations on the role of attitude towards the activity targeted by the technology in technology adoption studies. As this may be an important factor of influence on user positive and negative perceptions that determine the behavioural intention to adopt the technology, its role deserves further attention.

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