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Abstract

In order to address the claims that mobile phone usage is addictive, a study was undertaken to categorize mobile phone usage behaviour based on the underlying motivation. Six categories were identified: addictive, compulsive, dependent, habitual, voluntary and mandatory. A survey of 184 students found that the behaviour cannot be conclusively categorized as any specific type, although there was stronger support for mobile phone usage being categorized as dependent, voluntary or mandatory behaviour, rather than being addictive, compulsive or habitual.

Keywords: mobile phone usage, addictive behaviour, compulsive behaviour, dependent behaviour, habitual behaviour, voluntary behaviour, mandatory behaviour

1   Introduction

The mobile phone is becoming the primary personal communication mechanism worldwide (Leung & Wei, 1999; Ling, 2000; Wei, 2006). Not only is it a talking device on the move, but it is also a necessary social accessory (Peters & Allouch, 2005). Its use has become a social phenomenon, taking place within a social context and influenced by perceptions of products, services, and social norms (Roos, 1993).

However, the view has also been expressed that "mobile phone usage is a compulsive and addictive disorder which looks set to become one of the biggest non-drug addictions in the 21st century" (Madrid, 2003).

Till now, few academic studies have responded to such statements. While some, such as Aoki and Downes (2003), have examined mobile phone usage as addiction, it would appear that no study has specifically explored the relationship between mobile phone usage and behaviour types according to which it might be categorized.

2   Research Objectives

The research questions which thus arose were:

- Is mobile phone usage addictive?
- Is mobile phone usage some other behaviour type?
- What are the main types of mobile phone behaviour?

In categorizing a behaviour, it can be misleading to do so simply according to observable actions. Behaviour is driven by motivations (Albanese, 1993) and it would be more informative to study the underlying motivations of a certain behaviour before categorizing it. However, consensus is lacking on what the main triggers and motivations of mobile phone usage are (Aoki & Downes, 2003).

In attempting to answer the research questions, the approach chosen was to identify the type of behaviour according to the underlying motivations of that behaviour. The objectives of the research thus became:

- To identify relevant types of behaviour according to which mobile phone usage could be categorized
- To identify the underlying motivations typically associated with each of the types of behaviour
- To categorize mobile phone usage according to those types, based on the underlying motivations

An extensive review was conducted of the relevant psychology, sociology, consumer behaviour and mobile commerce literature in order to obtain a comprehensive insight into the phenomenon and to address the first and second objectives. Then a survey was undertaken to address the third objective. The following sections relate the findings.

For the purposes of this study, 'mobile phone usage' was limited to having a mobile phone and using it to communicate by means of calling and/or text messaging.

3   Literature Review

3.1   Human behaviour and motivation

Human behaviour can be seen as the actual performance of intentions (Maslow, 1943). It is triggered by various reasons and motivations (Hanley & Wilhelm, 1992), whether they be psychological or physical (Lester, 1990) social, cultural or situational (Maslow, 1943). (There are many motivational theories but these tend to be the main categories of motivation.)

From the literature, the six types of behaviour that were most frequently referred to were: habitual, addictive, mandatory, voluntary, dependent, and compulsive behaviour. The research thus focused on these but that does not imply an exclusion of other behaviour types.

3.1.1 Addictive behaviour

Addictive behaviour usually falls in the realm of abnormal behaviour. It is frequently defined as any activity, substance, object, or behaviour that has become the major focus of a person's life to the exclusion of other activities, or that has begun to harm the individual or others physically, mentally, or socially (Hanley & Wilhelm, 1992). Addictive behaviour is frequently mentioned in marketing and customer consumption research, and O'Guinn and Faber (1989) developed a model of addictive behaviour including four main elements: 1) a sudden and spontaneous desire to act; 2) a state of psychological disequilibrium; 3) the onset of psychological conflict representing an inner battle of thoughts; 4) a lack of regard or denial for consequences of the behaviour. These four elements have been used as criteria to study addictive behaviour in other research (Faber & O'Guinn, 1992).

Some questioned whether 'addictive' behaviours in sports and work should be labelled as abnormal behaviours, but rather as an extreme form of normal behaviours (Schiffman & Kanuk, 2000). However, according to Hanley & Wilhelm (1992),
the difference between viewing apparently addictive behaviour as normal or abnormal behaviour, lies in the motivation for engaging in the activity and consequences of the behaviour.

Addictive behaviours in general are often rooted in low self-esteem and feelings of powerlessness (Maslow, 1943; O'Guinn & Faber, 1989; Hanley and Wilhelm, 1992) and the behaviour is a way of improving/relieving that (O'Guinn & Faber, 1989).

3.1.2 Compulsive behaviour

O'Guinn and Faber (1989) stated that "most compulsive behaviour, especially compulsive buying, was first identified and described as chronic, repetitive, behaviour that becomes a primary response to negative events or feelings". Such compulsive behaviour is typically very difficult to stop and ultimately results in harmful consequences. These consequences are not only economic but also psychological and societal (O'Guinn & Faber, 1989).

Compulsive behaviour is frequently defined as an impulse disorder; the inability to restrain an impulse (Hanley & Wilhelm, 1992; O'Guinn & Faber, 1989; Faber & O'Guinn, 1992). In order to distinguish between non-compulsive behaviour and compulsive behaviour, Rook and Hoch (1985) developed a model of compulsive behaviour including five elements: 1) a sudden and spontaneous desire to act; 2) a state of psychological disequilibrium; 3) the onset of psychological conflict representing an inner battle of thoughts; 4) a reduction in rational evaluation of product attributes; and 5) a lack of regard or denial for consequences of the behaviour.

Compulsive behaviour and addictive behaviour are usually studied in parallel. However, they are different. Compulsive behaviour is an irrational need to perform some action, often despite negative consequences, and it is usually periodic (Rook, 1987). Although addictive behaviour shares similarities with compulsive behaviour, unlike the periodic characteristic, addictive behaviour tends to be a continuing pattern (Rook, 1987).

People often behave compulsively to relieve stress. Additionally, the motivation for compulsive behaviour appears to come more from trying to attain interpersonal and self-esteem goals (O'Guinn & Faber, 1989), and if those efforts are initially successful, the behaviour is reinforced. (Hanley & Wilhelm, 1992).

3.1.3 Dependent behaviour

Dependent behaviour is often defined as lying on the same a continuum of physical and psychological attachments as addiction (Li & Chung, 2004). However, a number of researchers disagree with such definition. They believe that dependent behaviour is different from addiction. Dependent behaviour is often motivated by the attached importance and social norm (Becker & Murphy, 1988). Therefore, addiction is not the deep-rooted reason of mobile phone usage, but the attached importance of communication and social norm.

3.1.4 Habitual behaviour

Many behaviours that people perform regularly can be characterized as habits (Biel, Dahlstrand & Grankvist, 2005). They are performed with little mental awareness. Habits are initiated by a goal or something the person wishes to achieve, and by cues in the environment (Biel et al., 2005). The cues send signals to an established habit which corresponds to behaviour in a given situation and will help one to attain the goal.

Many everyday activities are performed more or less automatically or unconsciously (Albanese, 1993). Habituation is unconscious stimulus specific (Lester, 1990). The habitual behaviour could have originally been motivated by the same sorts of motivations as voluntary behaviour - based on attitudes and social norms. In fact, Lester (1990) stated that social norms are able to affect a wide variety of human behaviour, especially routinized human activities.

3.1.5 Voluntary behaviour

Unlike habitual and addictive behaviour, voluntary behaviour is reasoned behaviour which is driven by specific motivations. Moreover, such behaviour is attached to positive impacts (Kang, Lee, Lee & Choi, 2007). This behaviour is essential in generating intended information benefits and social benefits such as strong interpersonal ties and a sense of belonging (Kang et al., 2007).

According to Ampt (2003), social and personal benefits are the main motivators for voluntary behaviour. Ampt (2003) found that people tend to conduct voluntary behaviour when it suits their lifestyle and core values.

3.1.6 Mandatory behaviour

Mandatory behaviour is defined as behaviour needing to be done, followed, or complied with, usually because of being officially required (Aoki & Downes,

2003) or being parentally mandated. In terms of motivation, mandatory behaviour is usually driven or prompted by environmental consequences (Aoki & Downes, 2003).

3.2   Motivation of mobile phone usage

Initially used simply to communicate, mobile phones currently perform multiple roles (Garcia-Montes et al., 2006). The mobile phone is no longer a phone linked to a space but rather a phone linked exclusively to an individual (Aoki & Downes, 2003). The following sections describe the range of motivations of mobile phone usage.

3.2.1   Social interaction

Even though many participants in studies acknowledged that they did not get their mobile phones initially for the purpose of social interaction, the phones became part of their lives, often used for staying in touch with their friends and families (Aoki & Downes, 2003). Text messages are often viewed as "gifts" (Taylor & Harper, 2003).

3.2.2   Dependency

As people start using a mobile phone regularly, it becomes part of their lives to such an extent that they feel lost without it. It becomes a necessity of their lives which accompanies them everywhere (Aoki & Downes, 2003). It is their main means of contact with others (Davie, Panting & Charlton, 2004). They feel disconnected if they do not have their mobile phone with them and tend to leave it on all the time (Blenford, 2006).

3.2.3   Image/Identity

Like other accessories, mobile phones are seen, at least by some, as bestowing status or confirming group identity (Taylor & Harper, 2003). In this regard Wilska (2003) saw the mobile phone and its usage as being "addictive", "trendy" and "impulsive" Various optional additions help owners personalize their mobile phones, express their identity and reaffirm their belonging to a particular group of friends (Leung & Wei, 2000).

3.2.4   Safety

A reason frequently mentioned for purchasing a mobile phone is its use in emergencies, where immediate contact with another party, such as family or emergency services, is vital (Davie, Panting & Charlton, 2004). Some people can be labelled as "security/safety conscious", and having a mobile phone makes them feel safer (Wilska, 2003).

3.2.5   Job-related

Leung and Wei (2000) found that people often initially acquire mobile phones for job-related reasons instead of social reasons. They use their mobile phones mainly because they need to contact work partners. The mobile phone is now a compulsory tool for many people to keep in touch in the business world (Ling, 2000).

3.2.6 Freedom

According to Wilska (2003), the mobile phone has reduced the possibility of parents being able to control their children's communication. Teenagers' conversations can now be more private, giving them more freedom (Wilska, 2003), even "emancipation" (Leung & Wei, 2000). In addition, the mobile phone offers a direct line to the intended recipient without the typical filtering by siblings or parents as with a landline.

3.2.7 Gossip

A benefit that is seen by many owners, is not simply for keeping in touch, but for more extended gossiping with friends and family (Peters & Allouch, 2005). Peters and Allouch (2005) see gossip as being essential to social, psychological and physical well-being – almost like a vital 'social lifeline'.

4 Research propositions

From the above it is evident that the motivations of mobile phone usage correlate, to a large extent, with the motivations of the different behaviour types. These correlations can be seen in Table 1, and form the basis of the propositions.

Table 1   Correlation between motivations of mobile phone usage and behaviour types

Motivation of mobile phone usage	Types of behaviour
Social interaction	Voluntary, Habitual
Dependency	Dependency
Image/Identity	Dependency
Safety	Mandatory, Voluntary
Job-related	Mandatory
Freedom	Voluntary
Gossip	Dependency

Mobile phone usage maintains or enhances self-esteem, particularly in terms of the overt display of different attributes of the phone. It has been found that users with low self-esteem are more likely to become addicted to using mobile phones (Peters & Allouch, 2005; Davie, Panting & Charlton, 2004). They are unable to resist carrying their mobile phones and calling others for no purpose. This indicates lack control over mobile phone usage.
    Proposition 1: Mobile phone usage is an addictive behaviour

Some users spend a lot on continually upgrading their device to maintain self-esteem, or spend large amounts of time talking on their mobile phone. Usually, such behaviour results in negative impacts on the users' lives. According to Rook and Hoch's (1985) compulsive behaviour criteria, such mobile phone usage can be regarded as compulsive behaviour.
    Proposition 2: Mobile phone usage is a compulsive behaviour

Most often people rely on mobile phones to contact others. The value of the mobile phone lies in the communication function and that is what people thus depend on (Becker & Murphy, 1988).

>   ***Proposition 3***: Mobile phone usage is a dependent behaviour

Social interaction, dependency, and gossip seem to be prominent drivers of mobile phone usage. They all reflect social management and belonging needs. With the establishment of the mobile social norm, an habituation to use mobile phones to maintain social interaction develops. In order words, mobile phone usage could be habitual behaviour (Biel et al., 2005).

>   ***Proposition 4***: Mobile phone usage is a habitual behaviour

It could be assumed that most users use mobile phones for a reason, and such behaviour is performed willingly and consciously by individuals of their own volition. For example, using a mobile phone for safety, seeking freedom, and social interaction are all reasoned actions. These actions share the same characteristics of voluntary behaviour in that such "causal effects" behaviour is driven by specific motivation (Kang et al., 2007).

>   ***Proposition 5***: Mobile phone usage is a voluntary behaviour

Some mobile phone usage can be viewed as mandatory behaviour because it is driven by environmental consequences instead of self willingness, for example, job-related mobile phone usage, or parental requirements (Aoki & Downes, 2003).

>   ***Proposition 6***: Mobile phone usage is a mandatory behaviour

5   Research design

A questionnaire was designed to collect the data. Although the different behaviour types had not previously been studied in concert, they had all been studied separately in depth and valid and reliable instruments existed for their assessment. The questionnaire thus consisted of items to measure all the constructs plus some demographics.

Six typical types of behaviour were selected as the constructs of the survey: habitual, addictive, mandatory, voluntary, dependent, and compulsive behaviour.

To ensure internal validity and reliability, the majority of the items were derived from existing relevant instruments (Zmud & Boynton, 1991) with minor modifications. After the modifications, the validity of new items was checked by academics of the schools of information systems and psychology of a New Zealand university. Following a number of iterations, between 5-6 items per construct were used which is in accordance with Pinsonneault and Kraemer's (1993) advice that the optimal number of items per construct is 3-6. Items were to be rated on a Likert scale of five points, which is the most popular choice for ordinal scales (Rodeghier, 1996). So as not to predispose respondents to similar ratings for what they perceived to be items measuring the same construct, items were presented in a random order (Cook, 1995). However, more sensitive questions were placed near the middle of the questionnaire so as to avoid frightening off respondents or leaving them with disturbed emotions (Rodeghier, 1996).

The questionnaire was pre-tested on a class of information systems honours students. Each student completed the questionnaire separately in the presence of a

researcher, providing them with the opportunity to request clarification if necessary. None was requested and no alterations appeared to be required.

Peters and Allouch (2005) had found that university students were one of the main groups of mobile phone users in New Zealand. A sample was thus drawn from first year information systems students. The students were approached at the beginning of a lecture and practically each student agreed to participate. The questionnaires were completed in situ and collected immediately. A total of 184 questionnaires were completed.

6 Data analysis

The data analysis section is divided into two parts: the demographic data and the data pertaining to the behaviour constructs.

6.1 Respondent demographics

Confirming Aoki and Downes' (2003) findings, the vast majority of students (92%) used their mobile phones frequently. No difference was noted between New Zealanders who made up 50% of the sample and international students who made up the other 50%.

There were slightly more females (53%) than males but the two genders seemed to use their phones equally frequently. This differs from Peters and Allouch's (2005) finding that females tend to use mobile phones more than males because females are more likely to gossip on the phone. However, males and females use mobile phones for different reasons - more females than males have a mobile phone for safety needs (Aoki & Downes, 2003).

6.2 Factor analysis

The factor analysis was conducted using SPSS 13.0 and the objective was to test the validity and reliability of the behavioural constructs. Although based on a combination of existing instruments, the combination was new and therefore the research could be regarded as exploratory.

In order to ascertain convergent validity and discriminant validity of the factors, or constructs, the loadings of each item onto the respective factor should be above 0.6, although loadings of 0.5 and above are acceptable for larger samples or for exploratory analysis (Hair, Anderson, Tatham & Black, 1998). To determine reliability of a factor, a Cronbach's alpha of over 0.6 is usually required but for exploratory work or for large samples, it may be 0.5 (Field, 2000).

Two approaches were adopted: unconstrained factor analysis where the items 'spoke for themselves'; and analysis according to the predetermined factors.

With the unconstrained approach, there was a strong propensity for the items all to load onto one factor. Those few which formed other factors had loadings of 4.5 and lower, or else formed single-item factors. The varimax rotation of the principal components failed to converge in 25 iterations, which is the recommended limit (Field, 2000). This seems to indicate a great similarity of the constructs with one another, and a lack of distinction.

With the analysis according to the predetermined factors, the Cronbach's alpha of the habitual, dependent and compulsive behaviour factors were all above 0.6, with dependent behaviour improving even more with the deletion of Item 27 (See Table 2). This deletion seems logical because all the other items refer to negative emotional consequences of being without the mobile phone or its use. It was thus deleted. The Cronbach alpha of the addictive behaviour factor was below 0.6 originally, but yet still above the acceptable level of 0.5. However, with the deletion of Item 8, its Cronbach alpha rose dramatically to .842. This deletion seems logical given that this item has a positive implication whereas the other items have negative emotional implications. It, too, was deleted. The voluntary and mandatory behaviour factors both scored a Cronbach's alpha of below 0.6 but above 0.5, and neither could be improved by the deletion of any item. Both were thus regarded as acceptable.

Table 2   Cronbach's alpha for each construct

Construct		Question	Cronbach's alpha	Cronbach's alpha if item deleted
Habitual	19	I frequently use my cell phone at inappropriate times without thinking e.g. during lecture		
	1	Using my cell phone is something I do without thinking		
	28	I end up using my cell phone more than I need to just because I do it all the time		
	7	I often start to use my cell phone, even though I might be uncertain about my intention to use it		
	16	Sometimes I want to use my cell phone, but I do not have a clear ideal why I want to use it		
	29	I use my cell phone at times when I see everyone else uses theirs	.793	
Mandatory	4	My parents wanted me to have a cell phone so they can keep in touch with me		
	18	I have a cell phone because my employer or colleagues ask me to		
	10	I got my cell phone to use in case of emergency		
	30	I have a cell phone so that my friends can keep in touch with me		
	6	People who are important to me think that I should use a cell phone	.525	
Dependent	1	When I don't have my cell phone with me, I feel incomplete		
	22	I feel lost when I leave my cell phone at home		
	15	I feel anxious if I forget to take my cell phone with me		
	25	I feel anxious or nervous on days when I can't use my cell phone		
	12	I feel upset to think that I might be missing calls or messages	.	.842
	27	I always leave my cell phone on	.798	

Addictive	2	My cell phone starts to disrupt my daily life.		
	26	I feel that I don't have control of my impulse to use my cell phone		
	11	I feel others would be horrified if they knew of my cell phone usage habits		
	20	I don't seem able to change my cell phone usage behaviour even though people tell me I spend too much time on it		.880
	8	I have total control over using my cell phone, I can take it or leave it	.526	
Compulsive	9	I have to use my cell phone even when I know I can't afford it		
	14	Just using my cell phone, no matter what I do with it, makes me feel good		
	24	I usually ignore the harmful consequences of spending too much time talking on the phone instead of attending to people around me		
	17	I feel guilty when I use my cell phone more than I need to	.608	
Voluntary	23	A cell phone allows me to use my time efficiently		
	31	It is financially beneficial to use a cell phone as opposed to a landline		
	32	Using a fashion cell phone improves my image		
	21	Using a cell phone improves my relationship with my friends		
	5	I find cell phones are easy to use		
	13	Having a cell phone makes me feel safe while I am walking alone at night	.538	

The instrument thus appeared to be reliable in terms of measuring the different behaviour types of mobile phone usage. Despite the two deletions, there was no improvement on the original unconstrained factor analysis.

In order to address the propositions, the mean scores of the constructs, after the deletion of the two items, as well as the medians were assessed. These are presented in Table 3.

Table 3   Mean scores and medians of constructs

Behaviour type	Mean	Median
Dependent	3.4	3.2
Addictive	2.32	2.25
Habitual	2.93	3.0
Mandatory	3.5	3.6
Voluntary	3.4	3.5
Compulsive	2.7	2.5

As can be seen, the scores appear to fall into two groups: those around 3.4 and those less than 3.0. In the former group, mandatory behaviour is at the top, with

voluntary behaviour and dependent behaviour following closely behind. In the latter group, habitual, compulsive and addictive behaviours are the less prominent with addictive behaviour being the least so. It seems that mandatory behaviour is the strongest type of mobile phone usage, and addictive behaviour the weakest. If a cut-off point of 3 is chosen to represent 60% of the possible full score, then it would appear that mobile phone usage could be regarded more as mandatory, voluntary or dependent behaviour rather than habitual, compulsive or addictive. Propositions 6, 5 and 3 are thus supported but not propositions 4, 3 and 1.

7 Discussion

The first finding which came to light was that mobile phone usage amongst university students is very high. This tallies with the findings of Peters and Allouch (2005). However, contrary to their findings that female users are the ones who prefer to gossip on the phone, the findings of this research indicate that both sexes have an equal disposition to gossiping on the phone.

With regard to the different types of mobile phone usage, the factor analysis failed to demonstrate that the measures used were able to differentiate between distinct types. This could possibly be attributable to the types of behaviour used being fairly similar to one another and it being difficult to differentiate at which stage one becomes the other. For instance, behaviour could start out as voluntary and progress to being addictive, or it could start out as being mandatory and progress to being dependent. It would also seem to indicate that mobile phone usage defies categorization in terms of behaviour type.

However, as the items used for assessing the reliability of each construct indicated that they were all reliable, the mean and median scores for each construct were examined for further insights.

The two groups that emerged quite clearly were those that seemed acceptable as behaviour categorizations of mobile phone usage, and those that did not. Belonging to the first group were mandatory, voluntary and dependent behaviours. In light of the students being first years and approximately half of them being international students, many of whom were away from their homes and countries for the first time, it is understandable that parents might have expected or mandated regular contact from their children. In addition, many university students work and they are required to carry mobile phones for ease of contact by their employers. Their behaviour is thus environmentally mandated (Aoki & Downes, 2003). With regard to voluntary behaviour, first year students, many of whom are not studying in their home town, seek to establish new contacts and relationships. It is thus a conscious decision to communicate with a certain individual that drives their phone usage. It suits their lifestyle and core values (Ampt, 2003). In terms of dependent behaviour, establishing themselves in a new environment, first year students might become very dependent on whatever "support" mechanisms exist, especially for giving social and intellectual assurance and advice. This is in line with the view expressed by Becker and Murphy (1988) and the findings of Leung and Wei (2000).

Belonging to the second group were habitual, compulsive and addictive behaviours. Although these types did not receive strong support in terms of

scores, they deserve consideration. In terms of habitual behaviour, this might very well be such an ingrained voluntary or mandatory behaviour that it is done without thinking and triggered by environmental cues (Biel et al., 2005), such as checking the mobile phone after each lecture. Compulsive and addictive behaviours fall into the same spectrum, except that the motivation for compulsive behaviour does not exist continually (Rook, 1987). Addictive behaviour shares the same characteristic of lack of regard for the consequences (O'Guinn & Faber, 1989) and this is sometimes seen in students using their mobile phones in lectures even though it is forbidden.

Turning to the propositions, there was support for each one of them – to a greater of lesser extent. Mobile phone usage could be addictive, compulsive, dependent, habitual, mandatory and voluntary. However, to state conclusively that it is any one behaviour type, would be to deny the fact that no behaviour type scored a 5 on either the mean or the median. At best, the only conclusion that could be drawn is that mobile phone usage could be one of the six behaviour types. Nevertheless, although relatively strong support existed for mobile phone usage being mandatory, voluntary or dependent, the support for the behaviour being habitual, compulsive or addictive was relatively weak.

A further point to note is that the different behaviour types need not be mutually exclusive. Thus behaviour could be predominantly mandatory, with elements of dependent and habitual behaviour, or any other combinations.

In addition, mobile phone usage could be any one of a number of behaviour types, depending on the situation and social or environmental conditions in which an individual finds him/herself.

8   Conclusion and directions for future research

This paper has explored the various types of behaviour according to which mobile phone usage could be categorized. Six possible categories of addictive, compulsive, habitual, dependent, mandatory and voluntary behaviour were identified, based on their underlying motivations. A survey was conducted to test the categorization. Findings indicated that mobile phone usage could not be conclusively and exclusively categorized as any one of the categories although greater support tended to exist for it being mandatory, voluntary or dependent behaviour, with the least support for it being addictive. However, behaviour could be predominantly one type with elements of other types as well. Behaviour type could also differ according to situation and environmental conditions.

This research has addressed the claims made that mobile phone usage is addictive. It has also provided insights into the underlying motivation of the various types of mobile phone usage. As such it has helped to inform the academic exploration into mobile phone usage, as well as the practitioners' (manufacturers and marketers) grasp of the needs of mobile phone users. Future research would need to explore mobile phone usage in terms of each behaviour type (except possibly addictive behaviour) in greater depth. It could also explore the correlations between different ages, genders and nationalities and the various types of behaviour. Lastly, research could examine whether these behaviour types apply to other technology usage such as e-mail participation and online gaming.

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