

*Full Length Research Paper*

# Are mobile phones the 21<sup>st</sup> century addiction?

Richard Shambare\*, Robert Rugimbana and Takesure Zhoua

Tshwane University of Technology, South Africa.

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**The mobile or cell phone has become the 21<sup>st</sup> century icon. It is ubiquitous in the modern world, as an on-the-go talking device, an internet portal, a social networking platform, a personal organizer, and even a mobile bank. In the information age, it has become an important social accessory. Since it is relatively easy to use, portable and affordable, its diffusion continues to surpass that of other ICTs. Research increasingly suggests cell phone usage to be addictive, compulsive and habitual. Students are among the heavy users of mobile technologies, and accordingly, a 33-item questionnaire measuring addictive and habitual behaviour was administered to a sample of students. Results indicate that indeed mobile phone usage is not only habit-forming, it is also addictive; possibly the biggest non-drug addiction of the 21<sup>st</sup> century.**

**Key words:** Addiction, dependency behaviour, cell phones, mobile phones, youths.

## INTRODUCTION

As the popularity of ICT-driven communication increases, mobile phone usage has been tipped into mainstream culture. This is particularly true for young adults, who increasingly consider mobile phones as part of their being and identity (Hooper and Zhou, 2007; Madrid, 2003). Past studies demonstrate that young adults and students use cell phones for various purposes including Facebook, and students spend at least three hours every day on their Facebook accounts using mobile phones (Mvula and Shambare, 2011).

Given the widespread adoption of mobile phones, many researchers have posited that their use is addictive, compulsive, dependent and habit-forming (Aoki and Downes, 2003; Hooper and Zhou, 2007; Madrid, 2003). Madrid (2003) particularly asserts that "mobile phone usage is a compulsive and addictive disorder which looks set to become one of the biggest non-drug addictions in the 21<sup>st</sup> century".

Despite this, very little research attention has focused on this phenomenon, and even less has tested these claims empirically. It is against this background that the research reported on in this article investigated these claims by testing whether mobile phone usage is indeed addictive, compulsive and habitual. To achieve this, a

mobile phone usage questionnaire developed by Hooper and Zhou (2007) to measure addictive, compulsive and habitual behaviour was tested on a sample of South African students.

Since students usually take the lead in adopting technological innovations, including mobile phone usage (Rugimbana, 2007), a student population was considered ideal.

Hooper and Zhou (2007) consider mobile phone usage as having a mobile phone and using it to communicate by means of calling or sending text messages commonly known as SMSs.

For practical purposes, this definition was adopted for the purposes of this research. Mobile phone usage is a distinct consumer behaviour, the implications of which are potentially valuable to a multiplicity of disciplines including marketing and education.

For educators, understanding how and why students use cell phones can provide them with knowledge not only to facilitate learning, but to discover means of embracing the technology in the classroom (Bicen and Cavus, 2010; Carter et al., 2008; Mvula and Shambare, 2011). On the other hand, marketers may gain valuable insight into using mobile phones as a medium for advertising as well as marketing mobile phones.

Past research has identified numerous types of behaviour associated with mobile phone usage. Therefore, this study concerned itself with the identification of these

\*Corresponding author. E-mail: [shambarar@tut.ac.za](mailto:shambarar@tut.ac.za).

types of behaviour and the respective underlying motivations for that behaviour. In other words, the objectives of the research were to:

1. determine whether the types of behaviour, according to Hooper and Zhou (2007), are identifiable in the context of a developed nation such as South Africa
2. categorize mobile phone usage according to the typologies identified in the latter study, based on the underlying motivations

The remaining sections of the paper are structured as follows: Firstly, the literature pertaining to mobile phone usage is reviewed in the following section. Secondly, the methodology employed to answer the research questions is presented. Results are then discussed. Finally, the paper concludes with implications of these findings, as well as suggested topics for future research.

## LITERATURE REVIEW

To appreciate mobile usage, the study considers a multidisciplinary review of the literature. Following on from Maslow's motivation model, Hooper and Zhou (2007) posit that human behaviour can be viewed as the actual performance of behavioural intentions driven by certain underlying motives. This view appears to be consistent with adoption theories such as Ajzen's theory of planned behaviour (1991) and Davis's technology acceptance model (1989). Basically, these models propose that product attributes (for example, relative advantage, perceived ease of use, or perceived usefulness) influence behavioural intention, which in turn initiates behaviour (Taylor and Todd, 1995).

### Motivation for mobile phone usage

Although mobile phones were initially used as communication devices, today, they are a 21<sup>st</sup> century icon that performs multiple roles (Garcia-Montes et al., 2006). Mobile phones can represent a bank if used in mobile banking (Jayamaha, 2008), a camera, personal organizer, a calculator and a social networking device (Bicen and Cavus, 2010). Aoki and Downes (2003) further argue that a mobile phone is no longer a phone linked to a space but rather a phone linked exclusively to an individual (Boyd and Ellison, 2008; Mvula and Shambare, 2011). Further, some of the more common motivations for mobile phone usage are discussed.

### *Social interaction*

Mobile phones are used for social interaction. Adopters use them to stay in touch with friends and family (Aoki and Downes, 2003). Improved mobile telephony and

technological advancement also guarantee mobile subscribers the freedom to use the Internet, email, social media such as Twitter and Facebook. Because of the wide array of features, mobile phones are ideal social-interaction tools.

### *Dependency*

Following adoption, users become more comfortable using cell phones. Rogers (1995) identifies this as 'commitment' to using an innovation. In other words, as adopters begin using mobile phones regularly they become part of the users' lives to such an extent that the users feel lost without them (Hooper and Zhou, 2007).

### *Image and identity*

Mobile phones may also be considered as status symbols. In particular, Shambare and Mvula (2011) assert that South African students adopt mobile phones to use on Facebook, simply because their friends use cell phones for Facebook. Hence, Wilska's findings (2003) propose mobile phone usage as being addictive, trendy and impulsive.

### Behaviour associated with mobile phone usage

From these motives, the literature identifies six types of behaviour associated with mobile phone usage. These are habitual, addictive, mandatory, voluntary, dependent and compulsive behaviour (Hanley and Wilhelm, 1992; Hooper and Zhou, 2007; Madrid, 2003; O'Guinn and Faber, 1989), and they are further discussed in detail.

### *Addictive behaviour*

Hanley and Wilhelm (1992) define addictive behaviour 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. Addictive behaviours in general are a means of improving feelings of low self-esteem and powerlessness (O'Guinn and Faber, 1989). In the context, therefore, increased attention, uncontrollable, and involuntary use of cell phones by subscribers can be regarded as an addiction.

### *Compulsive behaviour*

O'Guinn and Faber (1989) argue that compulsive behaviour is behaviour that is repetitive that the concerned individual usually experiences a strong urge to continuously perform the behaviour. The behaviour is

**Table 1.** Demographic profile.

Demographic characteristics		Percent
Gender	Male	29
	Female	71
Education level	High school	42
	University diploma/degree	26
	Postgraduate	32
Mobile phones owned	One	64
	Two	28
	Three or more	8
Mobile phone experience	< 1 year	7
	1 – 3 years	15
	3 – 5 years	10
	5+ years	68

typically very difficult to stop and ultimately results in harmful economic, psychological, or societal consequences.

### ***Dependent behaviour***

Dependent behaviour is different from addiction in that it is often motivated by the attached importance of a social norm (Hooper and Zhou, 2007). In this context, it is not addiction of mobile phone usage, but the attached importance of communication.

### ***Habitual behaviour***

Many behaviours that people perform regularly can be characterized as habits, since they are performed with little mental awareness (Biel et al., 2005). These are initiated by environmental cues in a given situation which call for individuals to act. The cues send signals to an established habit which corresponds to behaviour in a given situation.

### ***Voluntary behaviour***

Unlike habitual and addictive behaviour, voluntary behaviour is reasoned behaviour which is driven by specific motivations.

### ***Mandatory behaviour***

Mandatory behaviour is defined as behaviour needing to be done, followed, or complied with, usually because it is

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

### **Research objectives**

To achieve the research objectives, the following research question was formulated:

RQ: What types of behaviour are associated with mobile phone usage?

### **RESEARCH DESIGN**

A survey method was used to collect data from students in Pretoria, using non-probabilistic sampling methods (Kerlinger and Lee, 2000). Four undergraduate students, trained as research assistants, administered the instrument to participants.

### **Sampling and sample size**

The non-probabilistic sampling technique was utilized, and to ensure a more representative sample consisting of students at all study levels, both high school and university students were surveyed (Calder et al., 1981). While these two groups may appear to represent two separate populations, past studies (Livingstone, 2008) focusing on young consumers have tended to combine consumers under 35 years old as one population group. The choice for including the entire spectrum of students stems from the latter views. Research assistants were positioned at strategic locations, near schools and libraries, where they approached students to participate in the study. The demographic characteristics of the sample are illustrated in Table 1. A majority, some 71% of respondents were female. By education level, 42% were high school students, some 26% university students at undergraduate

**Table 2.** Three-factor solution of mobile usage responses.

Variable	Factor 1 (Dependent)	Factor 2 (Habitual)	Factor 3 (Addictive)	Communalities
D5	0.840			0.721
M1	0.803			0.777
D1	0.783			0.687
D2	0.781			0.715
D3	0.765			0.712
D4	0.754			0.657
H3		0.828		0.727
H2		0.762		0.657
H1		0.722		0.584
H5		0.712		0.548
H4		0.695		0.629
A3			0.751	0.620
A2			0.737	0.629
C1			0.726	0.640
A1			0.633	0.454
A4			0.598	0.482
Eigenvalues	6.954	2.214	1.713	(Total)
Percentage of variance	26.065	18.209	16.181	60.455
Cronbach's alpha ( $\alpha$ )	0.915	0.832	0.788	

level; the remaining 32% of participants were postgraduate students. A significant proportion (64%) owned one cell phone and about a quarter (28%) owned two cell phones. Some 8% indicated they owned and used three or more cell phones. Cell phone experience, as expected was very high, a vast majority of 68 per cent indicated that they had been using cell phones for at least five years.

Respondents' ages ranged from 14 to 38 years, yielding a mean age of age of 20.67 years with a standard deviation of 2.94 years. The K-S normality test was not significant ( $D = 1.279$ ,  $p = 0.076$ ), suggesting that the sample followed a normal distribution.

#### Data collection

In total, 180 self-completion questionnaires were distributed to willing participants. Of these, 104 questionnaires were returned but only 93 were usable, representing a response rate of about 52%. The remaining 11 instruments had too many missing values to be useful.

#### Questionnaire

To measure mobile phone usage patterns, Hooper and Zhou's mobile phone usage scale (MPUS) (2007) was adapted and used to collect primary data. In keeping with the research objective of establishing whether cell phone usage is indeed addictive (Aoki and Downes, 2003; Madrid, 2003), the questionnaire used by Hooper and Zhou was considered most appropriate, as the latter study also considered a sample of students. A pilot test was conducted with 10 undergraduate students to ensure that the content of the questionnaire would be comprehensible to the target respondents (Dwivedi et al., 2006).

## RESULTS

This research question and the research objectives sought to identify the types of behaviour associated with mobile phone usage. It was also important to determine whether students exhibited one type of behaviour more than another or perhaps a set of behaviour types more than others. The MPUS was used to answer this question. Factor analysis was performed on the MPUS. According to Hooper and Zhou (2007), the MPUS contains six behaviour typologies, each represented by the six subscales: habitual, mandatory, dependent, addictive, compulsive and voluntary. These items are supposed to load independently in six factors or behaviour typologies.

Tests to determine the suitability of factor analysis were all satisfactory (KMO = 0.831; Bartlett's test of sphericity  $\chi^2 = 845.195$ ;  $df = 153$ ;  $p < 0.000$ ). Subsequently, factor analysis, with a principal component analysis (PCA) as an extraction method, was performed. As shown in Table 2, a three-factor solution explaining 60 per cent of variance was extracted. Factors were extracted on the basis of having eigen values greater than one. Dependency behaviour items loaded in Factor 1, habitual behaviour items loaded in Factor 2, and addictive behaviour items loaded in Factor 3. Table 2 illustrates that the three-factor solution accounts for at least 60% of the variance. Tests for internal consistency of items in all three factors yielded satisfactory results, as all factors

had Cronbach's alphas in excess of the 0.7 cut-off (Field, 2009).

## DISCUSSION

This research sought to establish the types of behaviour identifiable in mobile phone usage. A secondary objective was to assess how students in a resource-poor context compare to those in a resource-rich country. The researchers attempted to categorize mobile phone usage according to the typologies commonly identified in the literature. While earlier studies posit six typologies, this study found support for only three: dependency, habitual and addictive behaviour. These results suggest that mobile phone usage is dependency-forming, habitual and addictive. For instance, such dependent behaviour is exemplified by the overwhelming response to statements like: "I often feel upset to think that I might be missing calls or messages." The reliability of each of the factors, namely dependency, habitual and addictive behaviour, was 0.915, 0.832 and 0.788, respectively. These are comparable to those found by Hooper and Zhou (2007), which were 0.842, 0.793 and 0.880, respectively. The high reliability loadings of these factors indicate that the three different types of behaviour are in themselves distinct constructs. Future research could consider looking at these constructs utilizing a different sample of mobile users.

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