Available online at www.sciencedirect.com
ScienceDirect
Computers in Human Behavior 24 (2008) 346 360
Computers in Human Behavior
www.elsevier.com/locate/comphumbeh

Personality and self reported mobile phone use

Sarah Butt, James G. Phillips *

Psychology Department, Monash University, Wellington Road, Clayton, VIC 3800, Australia

Available online 8 March 2007

As the mobile phone supports interpersonal interaction, mobile phone use might be a function of personality. This study sought to predict amounts and types of mobile phone use from extraversion, agreeableness, conscientiousness, neuroticism and self esteem. One hundred and twelve mobile phone owners reported on their use of their mobile phones, and completed the NEO FFI and the Coopersmith self esteem inventory. Extraverts reported spending more time calling, and changing ring tone and wallpaper, implying the use of the mobile phone as a means of stimulation. Extraverts and perhaps disagreeable individuals were less likely to value incoming calls. Disagreeable extraverts also reported using the mobile phone more, and spent more time adjusting ringtone/wallpaper. The neurotic, disagreeable, unconscientious and extroverted spent more time messaging using SMS. This study concludes that psychological theory can explain patterns of mobile phone use.

Keywords: Mobile phones; Personality; Extraversion; Agreeableness; SMS

1. Introduction

Interpersonal transactions are a fundamental element of society (Argyle, 1984), and by extending the reach and immediacy of communication, the mobile phone has changed the scope of interpersonal interaction (Plant, 2000). Introduced to the Australian market in 1987, mobile phone connections exceeded the number of landline connections by 2001, and a nationwide estimate in 2004 5 revealed that at least 81% of the Australian population used a mobile phone (AMTA, 2005a). The phenomenal uptake of this technology

* Corresponding author. Tel.: +61 3 9905 3935; fax: +61 3 9905 3948.
E mail address: jim.phillips@med.monash.edu.au (J.G. Phillips).

0747 5632/$ see front matter
doi:10.1016/j.chb.2007.01.019

indicates that it has struck a strong chord within the community in a way that some other technologies might not have (Horst, Kuttschreuter, & Gutteling, 2007). Hence a consideration of factors associated with the uptake of the mobile phone may be informative when contemplating other innovations. Nevertheless, despite having a tremendous impact on the lives of many people, the mobile phone has only recently started to attract the interest of psychologists. As a communication tool, the mobile phone is used mostly for either business or social purposes, but as it is such a personal device it is also used as an illustration of status, security and identity (Plant, 2000). It is therefore highly likely that the personality of an individual will predict types of mobile phone use (e.g. Bianchi & Phillips, 2005). The present paper addresses the psychological predispositions that might underpin mobile phone use. Previous studies have used the Five factor model of personality (Costa & McCrae, 1992) to address internet use (Landers & Lounsbury, 2006; Wyatt & Phillips, 2005). The present study considered whether personality traits such as neuroticism, extraversion, agreeableness, conscientiousness, or self- esteem will predict amount and type of mobile phone use.

Plant (2000) observed that the model of the phone, the ring tone and wallpaper, are a display to others of who you are. As such the amounts of use of this communication channel, and the types of channels used may be informative (see Argyle, 1984), and may have implications for well being (Welford, 1966, 1987). The choice of communication channel (e.g. camera versus SMS) may offer information as to how much the communicator is prepared to disclose (see Luft & Ingham, 1955) or may offer information as to the types of interpersonal transactions that the communicator is prepared to engage in (Galin, Gross, & Gosalker, 2007; Guagdagno & Cialdini, 2007). In turn, the efficacy of these transactions may influence the user's self-esteem. Hence it is likely that there will be relationships between mobile phone use and personality traits and perhaps well-being.

1.1. Self-esteem

Low self-esteem has been linked with heavier amounts of internet use (Armstrong, Phillips, & Saling, 2000; Davis, 2001). Joinson (2004) tested whether self-esteem predicted the preference for different types of communication by Internet users. Users with low self-esteem expressed a significant preference for e-mail communication, while users with high self-esteem preferred face-to-face communication. According to Joinson, email offers people with low self-esteem increased control over an interaction and their own presentation (see McKenna & Bargh, 2000). These people are said to have depleted reserves of self worth to deal with rejection or negative feedback in social interactions. As SMS and e-mail operate in a similar fashion, it is therefore expected that self-esteem will predict the time spent sending and receiving SMS. For instance, Bianchi and Phillips (2005) observed that lower self-esteem was related to problems associated with mobile phone use. In addition, Reid and Reid (2004) have found that the preference for talk or text message use on the mobile phone is related to the personality of the user. Those who preferred to talk on their mobile phones favoured voice calls over receiving a text message and were significantly less socially anxious and lonely.

There is comparatively little information available on the personality traits of mobile phone users, however, the five factor model potentially offers a recognised framework for researchers to employ (Costa & McCrae, 1992). The five factors used to describe personality are extroversion, neuroticism, agreeableness, conscientiousness and openness to

experience. There are reasons to believe that some of these traits may predict mobile phone use.

Extraversion is associated with traits such as warmth, gregariousness, assertiveness, activity, excitement-seeking and positive emotions (Anastasi & Urbina, 1997). Previous research into internet use has been equivocal, with qualitative studies arguing whether introverts or extraverts were more prone to heavier use (e.g. Griffiths, 1997; Shotton, 1989; Young, 1998). Longitudinal studies have observed that Internet use made Introverts more introverted (Kraut et al., 1998), whilst more extraverted types reported positive social effects (Kraut et al., 2002). This suggests that Internet use facilitates or supports pre-existing interests (Griffiths, 1996, 1998). Bianchi and Phillips (2005) observed that mobile phone users were more likely to be extraverted. This result is consistent with Amichai-Hamburger, Wainapel, and Fox (2002) findings that extraverts felt their true identity was accurately expressed through more traditional forms of social interaction. Conversely, past research suggests that greater introversion will be associated with more time spent sending and receiving SMS (Amichai-Hamburger et al., 2002; Kraut et al., 1998). But this is by no means certain, for instance, Wyatt and Phillips (2005) reported extraverts spent more time sending emails.

Neuroticism is characterised by traits such as anxiety, self-consciousness and impulsiveness (Anastasi & Urbina, 1997). Hamburger and Ben-Artzi (2000) found neurotic women use the Internet for predominantly social purposes, while neurotic men were less likely to access information services. Amiel and Sargent (2004) revealed that neuroticism explained 24% of the variance in Internet motives and that those high in this trait reported using the Internet to feel part of a group and to escape loneliness. This suggests that the emotionally unstable are using the Internet as a replacement for traditional social interaction. Nevertheless, neurotic individuals were also found not to use text-messaging tools, such as e-mail, or to take part in online discussions (Amiel & Sargent, 2004). Bianchi and Phillips (2005) did not find relationships between neuroticism and mobile phone use.

Agreeableness is measured in terms of trust, altruism, compliance and modesty (Anastasi & Urbina, 1997). Studies have observed greater amounts of internet use in those who are low in agreeableness (Landers & Lounsbury, 2006; Wyatt & Phillips, 2005). This may reflect differences in interpersonal skill, or less agreeable people may just have more time on their hands (Landers & Lounsbury, 2006; Scealy, Phillips, & Stevenson, 2002). Bianchi and Phillips (2005) did not address agreeableness, but it may be of interest. For instance, there are indications that mobile phones may be used to harass or bully others (AMTA, 2003, 2005b; Charlton, Panting, & Hannan, 2002).

Conscientiousness is characterised by competence, achievement, self-discipline and dutifulness (Anastasi & Urbina, 1997). Conscientiousness is of interest as Lavoie and Pychyl (2001) reported that 50.7% of Internet users sampled procrastinated through Internet use on a frequent basis. As the mobile phone is used for business and personal purposes (Bianchi & Phillips, 2005) conscientiousness may potentially predict mobile phone use.

Openness to experience relates to an individual's fantasies, ideas, actions, feelings and values (Anastasi & Urbina, 1997). Open individuals are often less conforming and have more unusual and widespread interests, which they seek using a larger variety of means. Young and Rodgers (1998) claim that dependent computer users have a need for stimulation that could lead to overuse and abuse of work access privileges. However, openness to experience appears to be related to searching behavior (Wyatt & Phillips, 2005). As searches are not one of the more accepted applications of mobile phones, openness

to experience is unlikely to predict phone use, and was not considered in the present study.

As personality is expected to influence interpersonal transactions (Eysenck, 1994) it should also predict mobile phone use. Agreeable extraverts would be expected to use their mobile phones more often. As extraverts are sensation seeking, they might also spend more time adjusting their phones' appearance (tone, wallpaper). Personality should also predict the types of interactions that people are prepared to engage in (e.g., preference for voice over text). As SMS offers a greater opportunity to control social interaction (McKenna & Bargh, 2000), neurotic introverts with low self-esteem might be expected to prefer SMS. In addition, the less conscientious might prefer sending SMS to working. There might also be an interplay between efficacy of communication and personality. Therefore extraverts with high self esteem might be expected to receive more phone calls, while those with low self-esteem might receive more unwanted calls.

2. Method

2.1. Participants

Two hundred questionnaires in total were circulated, of which 115 were returned (a response rate of 57.5%). Of the questionnaires returned 3 were blank and 112 were completed for adequate use in the study, hence resulting in 112 participants in this study (78 females, 34 males). Age ranged from 18 to 59 years with an average age of 28.36 (SD 9.87). The highest level of education demographic revealed that the sample were typically university graduates. Involvement was restricted to those who owned mobile phones and who were 18 years of age and over. Participants were recruited from workplaces, university campuses and the general public.

2.2. Materials

This study utilised the Coopersmith self-esteem inventory, the NEO-FFI, and a mobile phone use survey.

2.2.1. The Coopersmith self-esteem inventory

The Coopersmith self-esteem inventory (SEI) is a 25-item questionnaire, developed to measure the evaluative attitudes toward the self in social, academic, family and personal areas of experiences (Coopersmith, 1989). In this study the SEI was employed to analyse the personality trait of self-esteem, which has been found to be associated with individual mobile phone and Internet usage. The SEI is reported to have an alpha coefficient 0.79 for males and 0.83 for females, indicative of a good level of reliability. It also has good constructive validity (Coopersmith, 1989). Reliability analysis in this study produced a respectable alpha coefficient of .77.

2.2.2. NEO-FFI

The NEO-FFI is a self-administered 60-item version of the NEO PI-R Form S (Costa & McCrae, 1992). It is designed to measure the five major dimensions of personality, as described by the Five Factor Model of Personality. It uses five 12-item scales to measure Neuroticism, Extraversion, Openness, Agreeableness and Conscientiousness. Participant

level of statement agreement is rated on a 5-point Likert scale: (1) strongly disagree, (2) disagree, (3) neutral, (4) agree or (5) strongly agree. Costa and McCrae state acceptable alpha coefficients of .86, .77, .73, .68 and .81 corresponding to N, E, O, A, and C scales. Costa and McCrae also report good convergent validity ranging from .56 to .62 and good construct validity. Reliability analysis of the five scales in this study revealed excellent alpha coefficients of .83, .81, .76, .74, .81 for N, E, O, A and C, respectively.

2.2.3. Mobile phone use survey

The mobile phone use survey contained two sections, the first addressing demographic details and the second specific individual mobile phone usage. The demographic section consisted of three questions enquiring about the participant's age, gender and level of education.

The mobile phone usage section was made up of eight questions. Questions asked the average time each week spent: making and receiving calls; writing and receiving SMS; playing games; changing ring tone/wallpaper. Questions asked for an estimate of the average weekly amount of outgoing calls, and the percentages that would be for social and business purposes. Questions asked for an estimate of the average weekly amounts of incoming calls that were perceived as: wanted (i.e. likelihood of contacting caller back is high), and unwanted (i.e. likelihood of contacting caller back is low). Questions also addressed the: preference for the use of SMS or talking on a mobile phone; the degree of interest in mobile phone new features; and the length (in years) of mobile phone ownership.

2.3. Design

This study uses six separate multiple regressions for analysis and therefore is correlative in design. Scores for the SEI and NEO-FFI were totalled as per the instructions in their respective manuals. Descriptive statistics for all of the variables in the mobile phone use survey were calculated. To determine whether reported mobile phone use could be predicted from personality variables, separate multiple regressions were conducted upon each dependent variable. The predictor variables were neuroticism, extraversion, agreeableness, conscientiousness measured by the NEO-FFI, and self-esteem as measured by the SEI. Of particular interest were the dependent variables weekly average amount of time (minutes) making and receiving calls, writing and receiving SMS, changing ring tone and/ or wall paper, number of ingoing and outgoing calls, and percentage of incoming calls perceived as unwanted.

2.4. Procedure

Participants were recruited by personal appeal, poster recruitment and advertisement. Those participants wanting to take part in the study contacted the researchers via telephone or e-mail.. Participants were asked for a postal address for the purposes of sending out the survey and two personality measures, with the understanding that once the materials were in transit that their details along with their name was erased. To further ensure their anonymity in the study participants were asked in the explanatory statement, attached to the survey not to write identifying details on any of the study materials.