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## **Abstract**

This study aims to further understand factors involved in compulsive Internet use, with specific focus on the relation between social connectedness, the trait introversion, and compulsive Internet use. While Internet use can enhance social connectedness, compulsive Internet use has been associated with poor social connectedness. The factors that make a person vulnerable to compulsive Internet use and its negative effects remain unclear. The personality trait introversion has been associated with poor social connectedness, and there is disagreement on whether or not social interaction on the Internet is beneficial for people high in this trait. Australian university students ( $N = 168$ ) participated in an online survey. Standardised scales were used to measure social connectedness, introversion, and compulsive Internet use. Results show that introverted adults report more compulsive Internet use symptoms than extroverts. In addition, introversion partially mediated the relation between compulsive Internet use and social connectedness. The results raise questions for future research into factors involved in the development of compulsive Internet use and its effect on social connectedness, especially in those who are introverted.

## **Keywords**

Compulsive; Internet use; introversion; Internet addiction; social connectedness

## 1. Introduction

The Internet has evolved into a mainstream tool used by most people in the developed world for a broad range of daily activities (Khang, Kim, & Kim, 2013; Odacı & Çıkrıkçı, 2014). The ubiquitous influence of the Internet continues as new applications are developed to facilitate communication, social activities, online shopping, paying bills, entertainment and work related activities (Shen & Williams, 2011). While there are many positive outcomes of this technology there are also psychosocial problems that can occur if overused. Meerkerk and colleagues (2010) found that compulsive Internet users reported more loneliness, were less satisfied with life, experienced more depression and had lower self-esteem. This finding is of particular concern for people who are introverted, as it has been demonstrated that they use the Internet frequently for social interaction, and have high rates of compulsive Internet use (CIU: van der Aa et al., 2009). This article is concerned with the negative impact of Internet use and explores the relations between compulsive Internet use (CIU<sup>1</sup>), social connectedness, and the personality trait introversion.

### *1.2 Compulsive Internet use: a definition*

Compulsive Internet use is often referred to as an impulse-control disorder, suggesting it is a behavioural addiction (Meerkerk, Van den Eijnden, Vermulst, & Garretsen, 2009; Muusses, Finkenauer, Kerkhof, & Billedo, 2014; Van Rooij, Schoenmakers, Van de Eijnden, & Van de Mheen, 2010). Research has demonstrated this addiction to be a dysfunctional compulsive behaviour that occurs with specific activities used online, and not the Internet as a whole (Meerkerk et al., 2009; Shen & Williams, 2011). This is reflected in the DSM-5, which has included both Internet gaming and Internet gambling as distinct disorders (American Psychiatric Association, 2013). Consistent with this, the term CIU will be used in this paper as it is described by Meerkerk and colleagues (2009). They identified five dimensions of CIU: loss of control, preoccupation (cognitive and behavioural), withdrawal symptoms, coping or mood modification, and conflict (inter and intra personal). These dimensions reflect a cognitive behavioural model where maladaptive cognitions maintain the compulsive behaviour (Davis, 2001).

### *1.3. Social connectedness and compulsive Internet use*

Compulsive Internet use and its relation to social connectedness is complicated, with inconsistencies in nomenclature, and rapidly changing technology and Internet use behaviour.

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<sup>1</sup> Compulsive Internet use

Social connectedness is a multidimensional construct that includes concepts such as affiliation, companionship, friendship, engagement and loneliness (Townsend & McWhirter, 2005). Hagerty and colleagues (2007) defined social connectedness as occurring “when a person is actively involved with another person, object, group or environment, and that involvement promotes a sense of comfort, well-being and anxiety-reduction”. This definition reflects the complexity of the construct, and recognises the importance of the quality of a person’s connectedness and its effect on their psychological wellbeing.

Poor social connectedness has been found to be a contributing factor in the development of CIU (Meerkerk et al., 2010; Shen & Williams, 2011). While associations between social connectedness and Internet use have been found, the nature of the relationship continues to be debated. Shen and Williams (2011) argued that as Internet users spend more time online they reduce the time they spend with close social ties in the "real world" which has been found to result in increased loneliness. However, this does not seem to be the case for all individuals. Kraut and colleagues (2002) found that heavy Internet use increased social connectedness, but only in those with strong social support. In their study heavy Internet users with poor social support had worse social connectedness. It could be suggested that those with poor social connectedness are more likely to use the Internet for a social purpose, however they do not necessarily receive psychosocial benefits for doing this.

In contrast, Nie and Erbring (2000) found that increased hours spent on the Internet has reduced television and newspaper use and not the time individuals spent with family and friends. This finding was also supported by Leung (2004) who found that those with CIU watched significantly less television than non-compulsive users. These results suggest that those with CIU reduce a range of their daily activities in the “real world”. This also appears to be the case with social interaction, as individuals are using Internet communication tools instead of more traditional forms of communication—such as the telephone and letter writing (Douglas et al., 2008). It could be argued that this change in the use of communication tools may be beneficial for some individuals who find face-to-face interaction difficult.

Despite research suggesting the potential benefits of communicating online, research has also demonstrated that increased online social interaction has a negative psychosocial impact on some people. Caplan (2003) measured CIU, preference for online social interaction and psychosocial wellbeing. The results showed that a preference for online social interaction predicted severity of CIU. Caplan concluded that excessive use of synchronous social Internet activities may cause dysfunction in daily life in those that prefer to socialise using the Internet. These results further

support the suggestion that online social interaction has negative consequences for some individuals, and that individual differences may be involved in the development of CIU. However, research findings are conflicting on which individual differences determine a person's preference for online social interaction, and consequently an individual's risk of developing CIU.

#### *1.4. Introversion, social connectedness and compulsive Internet use*

The literature suggests that existing individual differences such as loneliness, depression, certain personality traits, and low self-esteem may increase a person's susceptibility to developing CIU (Caplan, 2002; Meerkerk et al., 2010; Odacı & Çelik, 2013; Weiser, 2001). Van der Aa and colleagues (2009) explored the moderating role of personality traits between daily Internet use and CIU in Dutch adolescents and young adults. They suggested that the quality of a person's social connectedness predicts their vulnerability to developing CIU. They concluded that it is easier for introverted individuals to make social connections online so they increase the amount of time spent doing this, and consequently their face-to-face social interaction reduces. Their study demonstrated that the development of CIU is dependent on an individual's ability to control their Internet use. In addition, they concluded that CIU may be influenced by certain personality traits, specifically finding that those who were more introverted reported more CIU (van der Aa et al., 2009).

Van der Aa and colleagues (2009) also suggested that daily Internet use may develop into CIU if an individual has poor social connectedness, provided the use of social Internet applications provide reinforcement of an alternative social life that is preferable to the one that exists off-line. Other research has demonstrated that individuals who are introverted have difficulty developing social relationships and prefer to use the Internet to converse with others (Amichai-Hamburger, Wainapel, & Fox, 2002; Ebeling-Witte, Frank, & Lester, 2007). Those who are more introverted tend to be less socially connected in the "face-to-face world" and can have a greater tendency for negative affect compared to those who are more extroverted (Lee, Dean, & Jung, 2008). Those higher in introversion have also been shown to use the Internet differently, which may impact their social support. Michell et al. (2011) found that increased use of certain Internet activities predicted higher amounts of introversion, and a reduced amount of social support. Therefore, people who are introverted are likely to have poor social connectedness, which may lead to a preoccupation with using the Internet to interact with others that may become problematic (i.e. increased risk of developing CIU). The practical implication of this is that introverts are more at risk than others, so this study will examine introversion, compulsive Internet use, and social connectedness.

#### *1.5. Expectations*

Compulsive Internet use (Davis, 2001; Meerkerk et al., 2010) and introversion (Lee et al., 2008) have been found to be associated with poor social connectedness. However, the relationships involved are unclear given the conflicting conclusions in the research reviewed above. This study will add to the literature on CIU in an Australian context, and seek to explain the relations between the trait introversion, social connectedness, and CIU.

**Hypothesis 1:** Introverted individuals will have more CIU symptoms than extroverted individuals.

**Hypothesis 2:** The relation between CIU and social connectedness is mediated by the trait introversion.

## 2. Method

### 2.1. Procedure

Purposive convenience sampling was used to recruit undergraduate and postgraduate students ( $N = 168$ ) from Charles Sturt University. This was an opportunity sample as the researchers had access to participants, and it was known that the students used the Internet. Participants were required to be 18 years old or over, and to have had Internet access at home for at least 12 months prior to completing the survey. All participants met the criteria for this study, however nine participants were removed from the analysis as they failed to complete the survey. The final sample ( $n = 159$ ) consisted of 33 males and 126 females. Thirty percent of participants were aged between 26-35, with 25% between 36-45, 21% between 18-25, 19% between 46-55, and 5% were 56 and over.

Invitations to participate in the online survey were posted on subject fora at the University. The invitation directed them to a Survey Monkey web page where participants could complete the survey online. The survey began with an information page and asked participants for informed consent. Participants were instructed to complete the survey in a single session, and once completed submit it online. The survey took under 35 minutes to complete. The results were analysed using the Statistical Package for the Social Sciences (SPSS) version 17, using descriptive and inferential statistical analysis techniques.

### 2.2. Materials

#### 2.2.1. Compulsive Internet Use Scale

The CIUS (Meerkerk et al., 2009) was used to measure compulsive Internet use symptoms. This scale consists of 14 items with questions asking how frequently an individual engages in specific Internet use behaviours. Participants indicate the frequency at which each of these behaviours occurred on a scale from 0 (*never*) to 4 (*very often*). The CIUS measures compulsive Internet use on a continuum of severity, with a score greater than 28 indicating compulsive Internet use (Meerkerk

et al., 2010). The CIUS is demonstrated to have good validity and internal reliability ( $\alpha = .89$ ) (Meerkerk et al., 2009).

#### 2.2.2. *The Interpersonal Support Evaluation List (ISEL)*

The ISEL (Cohen, Mermelstein, Kamarck, & Hoberman, 1985) was used to measure the latent construct social connectedness. This scale consisted of 40 items requiring a dichotomous true or false answer. There are four dimensions within the scale. The *appraisal* dimension measured the availability of others to talk to in times of need. The *belonging* dimension measured the perceived availability of people one can do things with. The *tangible* dimension measured the likelihood of material aid from others. The dimension of *self-esteem* measured the availability of positive support in comparison to others. The ISEL has demonstrated good internal reliability ( $\alpha = .88$  to  $.90$ ) and validity (Cohen et al., 1985).

#### 2.2.3. *Ten-Item Personality Inventory (TIPI)*

Two items from the TIPI were used to measure the construct introversion (Gosling, Rentfrow, & Swann, 2003). The TIPI consists of five subscales each measuring a personality trait. The full scale consists of 10 items in total with two items for each subscale. Each of the subscales are dimensional with the extraversion scale measuring both extraversion and introversion. A low score on the extraversion subscale indicates a more introverted personality trait. The two items are presented as direct statements and participants indicate to what extent they *agree* or *disagree* with each statement on a 7-point Likert scale. There is one negatively worded item requiring reverse scoring. This measure was chosen as it has been widely used, has demonstrated adequate reliability and validity (Gosling et al., 2003), and to reduce the length of the questionnaire to encourage good completion rates. Internal reliability for the extraversion subscale is  $\alpha = .68$  (Gosling et al., 2003). Low internal reliability is to be expected with two item subscales (Gosling et al., 2003).

#### 2.2.4. *Demographic items and Internet use behaviour*

A questionnaire was used that incorporated demographic items, and items measuring Internet use behaviour. Internet use items included questions on type of Internet connection, hours per week spent online for personal use, frequency of personal Internet use, type of Internet applications used and time spent on these applications as described by Meerkerk et al. (2006, p. 96).

### **3. Results**

#### 3.1. *Statistical assumptions and missing data*

The data was examined to assess missing data and recode scale items as required. Checks were conducted for violation of statistical assumptions, which included assessment of skewness of variables and screening for multivariate outliers. Scatterplots were used to check for linearity of all continuous variables examined in this study, which indicated that the linearity assumption was not violated. Histograms were used to check for normally distributed data. All variables were in the acceptable range of skewness.

### 3.2. Internet use

The majority of participants (42%) had access to the Internet at home for more than 10 years, with 5% reporting access to the Internet at home for less than 2 years. Most participants had access to fast Internet connections with 43% having broadband and 47% having wireless. In addition to home access 52% of participants used a mobile handset to connect to the Internet for personal use. The majority of participants (82%) accessed the Internet daily for personal use, with 32% spending an average of 2 hours per day online. Approximately 11% of participants spent more than 5 hours a day online for personal use.

### 3.3. Scale reliabilities

The reliabilities for each scale used in this study were adequate, as they were within the range reported in previous research using similar population samples. The Cronbach alpha levels are displayed in Table 1 with descriptive statistics. Only 21 participants (about 13%) meet the criteria for compulsive Internet use, scoring greater than the cut off score of 28 on the CIUS.

Table 1

*Sample Size, Means, Standard Deviations and Reliabilities for all Scales*

Scale	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$
Compulsive Internet Use Scale	159	14.20	10.93	.94
Interpersonal Support Evaluation List	154	31.82	6.41	.88
Ten-Item Personality Inventory				
Extraversion	159	10.60	3.26	.76

*Note.* The variation in sample size is due to missing values.

### 3.4. Correlations

A correlation analysis was used to determine the strength, direction and significance of relations between variables. Table 2 displays the correlation matrix for all variables measured. There were

two statistically significant correlations. First, introversion was shown to have a positive, moderate, relation with social connectedness, suggesting that less introverted individuals are more socially connected. Second, social connectedness showed a weak, negative, correlation with CIU, where those who were less socially connected had more CIU.

Table 2

*Summary of Correlations of Compulsive Internet Use, Social Connectedness, and Introversion.*

Variable	CIU	SC	INT
Compulsive Internet Use	1		
Social Connectedness	-.16*	1	
Introversion	-.15	.36**	1

\* $p < .05$ . \*\*  $p < .01$ .

*Note.* CIU = Compulsive Internet Use; SC = Social Connectedness; and INT = Introversion.

### 3.5. Hypothesis 1: Introversion and compulsive Internet use

The hypothesis that introverted individuals will have more CIU symptoms than extroverted individuals, was analysed with simple linear regression. Introversion negatively and statistically significantly predicted CIU, and uniquely accounted for about 1% of the variance. The variance accounted for effect size was  $R^2 = .02$ , adjusted  $R^2 = .02$ ,  $p = .05$ , 95% CI [-0.02, 0.07]. These results demonstrate a small effect. The negative beta value ( $\beta = -0.15$ ) suggests that introverted individuals have more compulsive Internet use symptoms than extroverted individuals, which supports hypothesis one. See summarised results in Table 3.

Table 3

*Regression Analyses Predicting Compulsive Internet Use From Introversion*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>F</i>	95% <i>CI</i>
Compulsive Internet use				3.80(1, 157)	
Introversion	-0.52	0.27	-.15*		[-1.04, 0.01]

\* $p < .05$ .

Note:  $B$  = unstandardised regression coefficients.  $SE B$  = standard error.  $\beta$  = standardised regression coefficients.  $95\%CI$  = confidence interval for  $B$ .

### 3.6. Hypothesis 2: Introversion as a mediator

Hierarchical multiple regression analysis was used to assess the hypothesis that the relation between compulsive Internet use with social connectedness is mediated by the trait introversion. Mediation was established using Baron and Kenny's (1986) criteria. The first step of mediation was met, with the predictor compulsive Internet use statistically significantly related to social connectedness,  $\beta = -.16, p = .05$ . Individuals with more compulsive Internet use had poorer social connectedness. The second step of mediation was also met, as there was a statistically significant relation between compulsive Internet use and the mediator introversion,  $\beta = -.15, p = .05$ . The third step of mediation showed that introversion had a statistically significant effect on social connectedness ( $\beta = .34, p = .00$ ), while controlling for compulsive Internet use. Finally, introversion only partially mediated the relation between compulsive Internet use and social connectedness, as the coefficient was greater than zero. The variance accounted for effect size for the final step is  $R^2 = .14$ , adjusted  $R^2 = .13$ ,  $95\% CI [0.04, 0.24]$ . These results can be interpreted as a small effect size. The Sobel test confirmed that the mediation effect of introversion on the relation between compulsive Internet use and social connectedness was not by chance as it was statistically significant,  $z = -2.18, p = 0.03$ . The second hypothesis was supported, as introversion was found to partially mediate the relation between compulsive Internet use and social connectedness as shown in Figure 1. The results are displayed in Table 4.

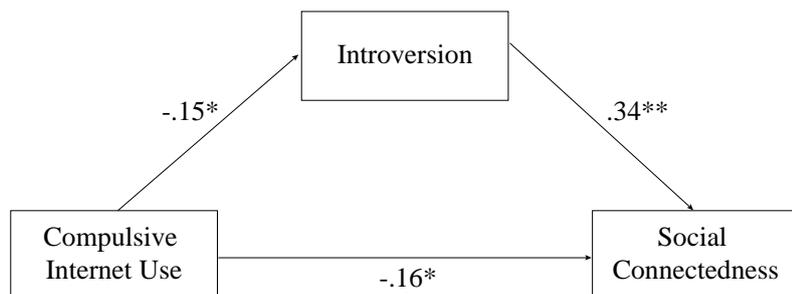


Figure 1. Standardised regression coefficients for the relations between compulsive Internet use and social connectedness as mediated by introversion.

\* $p < .05$ , \*\*  $p < .01$ .

Table 4

*Multiple Regression Analyses Predicting Social Connectedness From Compulsive Internet Use And Mediation Effect Of Introversion*

Variable	<i>B</i>	<i>SE B</i>	$\beta$	<i>F</i>	<i>95%CI</i>
<b>Step 1</b>				4.04(1, 157)	
Social connectedness (DV)					
Compulsive Internet use (IV)	-0.09	0.05	-.16*		[-0.18, -0.00]
<b>Step 2</b>				3.80(1, 157)	
Introversion (M)					
Compulsive Internet use (IV)	-0.05	0.02	-.15*		[-0.09, 0.00]
<b>Step 3</b>				12.82(2, 156)	
Social connectedness (DV)					
Compulsive Internet use (IV)	-0.06	0.04	-.11		[-0.15, 0.03]
Introversion (M)	0.67	0.15	.34**		[0.38, 0.96]

\* $p < .05$ . \*\*  $p < .01$ .

Note: *B* = unstandardised regression coefficients. *SE B* = standard error.  $\beta$  = standardised regression coefficients. *95%CI* = confidence intervals for *B*. DV = dependant variable. IV = independent variable. M = mediator.

## 4. Discussion

### 4.1. Compulsive Internet use, social connectedness and introversion

The first hypothesis that introverted individuals will have more CIU symptoms than extroverted individuals was supported. However, the effect size was small. This finding is consistent with previous research showing that introverted individuals report more compulsive Internet use (van der Aa et al., 2009). This finding adds strength to the suggestion that introverts develop a preoccupation with communicating on the Internet that may lead to CIU. However, introversion was not found to be an important predictor of CIU in this study, explaining a negligible amount of variance. The hypothesis that the relation between CIU and social connectedness is mediated by the trait introversion was also supported. Introversion was found to predict social connectedness, where those who were more introverted had less social connectedness. In addition, individuals with more compulsive Internet use had less social connectedness. The results support the finding by Meerkerk and colleagues (2007) that those with CIU have reduced social connectedness.

One explanation for these results is that compulsive Internet users spend less time involved in social interaction in the “real world”. This is compounded in those who are more introverted as they have difficulty developing face-to-face relationships, and the perceived safety of the Internet leads them to establish social relationships online (Amichai-Hamburger et al., 2002; Bargh & McKenna, 2004; van der Aa et al., 2009). If introverted individuals spend more time communicating online this may further reduce their social connectedness. This may be due to the type of social activities that may potentially have more addictive qualities, like synchronous activities. Introverted people engaging in synchronous social activities to communicate may experience more instant gratification, which encourages further use, and could result in an increased amount of time spent online. The use of certain social Internet applications is suggested to contribute to the dysfunction, as they provides a unique reward that encourages compulsive behaviour in those who find social interaction difficult (van der Aa et al., 2009).

Different types of online social activities may be more attractive to introverts compared to extraverts. For example, introverts may be happy to view their friends’ status on Facebook, but do not write status updates. They may be more comfortable using instant messaging as it is a direct communication with other individuals’ and does not involve a public space such as a forum. Therefore, it is possible that the way in which introverts engage in online social activities does not provide psychosocial benefits. For many individuals today the virtual world may be considered part of their “real life”. Is the distinction between “real life” and “virtual life” relationships as relevant today compared to 10 years ago? The results of the current study suggest that online relationships may not provide more positive “real life” relationships for introverts.

#### *4.2. Limitations and strengths of current study*

There are a number of limitations in this study. Like previous studies, the measurement for time spent on online activities was not ideal in this study. A retrospective self-report measure was used, which is compromised by memory bias. In addition, time spent on each activity is difficult to measure accurately, as it is now common-place to use more than one activity at a time. Although ideal, real time measures of time spent using online activities are difficult in a real word situation. Third, the use of the TIPI as a measure of introversion was not ideal, and future research should use more robust measures of introversion. Fourth, it is important to note that other personality traits may also influence CIU and social connectedness, thus future research should consider these. No causal conclusions can be made as this study was a cross sectional design. Future research could consider longitudinal designs that are better able to determine the causes of compulsive Internet use. This study has been able to add to the evidence base that the CIUS is a reliable and valid tool for the

measurement of compulsive Internet use in an Australian sample of university students. To our knowledge the CIUS has not been used previously on an Australian sample.

#### *4.3. Future research possibilities*

There are still many questions that remain unanswered about the relations between compulsive Internet use, social connectedness and introversion. New research should focus on understanding the causes of CIU to enable effective prevention and treatment options. In order to achieve this, establishing the individual differences involved in the development of CIU should be a focus for future research. This is particularly important as Internet use in Australian society is continuing to grow. Although not tested as part of our hypotheses, the authors found age had a significant correlation with CIU, where younger individuals had more CIU. This finding indicates that adolescents and young adults may have the most risk, particularly with relation to the development of social skills. Could increased computer-mediated-communication affect social skill development in adolescents? The CIUS should be tested more comprehensively on children and adolescents to help identify problems at an early stage. Longitudinal studies are needed to determine whether or not compulsive Internet use continues into adulthood. In addition, more studies are needed to add strength to the current finding that introverts have more CIU than extroverts. In addition, studies need to address why this is the case. Are introverts drawn to communicating online as they find it easier than face-to-face communication? If so, how can they be supported in doing this in a healthy way that does not lead to compulsive use? Introversion as a moderator of compulsive Internet use and social connectedness could also be explored.

Larger epidemiological studies are needed to assess the prevalence of compulsive Internet use in Australia. When conducting this research there was an obvious lack of publicly available information on compulsive Internet use. There is a need to increase the awareness of CIU in the community, so that support for those with CIU is more freely available. Finally, it is crucial that research continues to monitor Internet use behaviour over time, as individuals change their Internet use as a result of the changing technology.

### **5. Conclusion**

This study demonstrated that social and personality factors play an important role in CIU. It can be concluded that individuals with poor social connectedness may be at a greater risk of developing compulsive Internet use than those with healthy social connectedness. In addition, people who are more introverted appear to be more vulnerable to CIU, and those with CIU more vulnerable to poor social connectedness. Finally, Internet use is complex, and it does not affect people in the same

way. It is important to determine the individual differences that cause some people to be more at risk of CIU.

## **Appendix**

### *Demographic and Internet use behaviour questions*

#### Inclusion criteria questions

1. Do you have Internet access at home? Yes/No
2. How long have you had Internet access at home for?
  - (0) Less than a year
  - (1) 1 to 2 years
  - (2) 2 to 5 years
  - (3) 5 to 10 years
  - (4) More than 10 years.

#### Demographic questions

3. Gender: Male/Female
4. Age

#### Internet use questions

1. What type of Internet connection do you have for your home computer?
  - Ⓒ Dial up
  - Ⓒ DSL Broadband
  - Ⓒ Wireless (Fixed)
  - Ⓒ Cable
  - Ⓒ Satellite
  - Ⓒ Other
2. What is the download speed of your Internet connection?
  - Ⓒ Less than 256kbps
  - Ⓒ 256kbps to less than 512kbps
  - Ⓒ 512kbps to less than 1.5Mbps
  - Ⓒ 1.5Mbps to less than 8Mbps
  - Ⓒ 8Mbps to less than 24Mbps
  - Ⓒ 24Mbps or greater
  - Ⓒ Don't know.
3. Do you use a wireless mobile handset to connect to the Internet for personal use?
  - Ⓒ Yes
  - Ⓒ No

The following will ask you about the time you spend on the Internet and Internet applications for **private purposes**. If you use the Internet on your mobile handset please include this use when answering the survey questions.

4. How many days per week do you use the Internet for **private purposes**: (0) Less than once a week, (1) 1 day a week, (2) 2 days a week, (3) 3 days a week, (4) 4 days a week, (5) 5 days a week (6) 6 days a week, (7) Every day.
5. How many hours per day do you spend online on a typical day you use the internet for **private purposes**: (0) Less than one hour, (1) 1 hour, (2) 2 hours, (3) 3 hours, (4) 4 hours, (5) 5 hours (6) 6 hours, (7) 7 hours or more.
6. How many hours per week do you use each of the following internet activities for **private purposes**. Answers given on a 7-point scale: (0) None, (1) Less than 1 hour, (2) 1 to 5 hours, (3) 5 to 10 hours, (4) 10 to 20 hours, (5) 20 to 30 hours (6) 30 to 40 hours, (7) More than 40 hours per week.
  - a. Emailing
  - b. Searching for information
  - c. Surfing the internet
  - d. Online gaming (need to list different types)
  - e. Chatting (in chat rooms)
  - f. Instant messaging (including on social networking sites such as Facebook)
  - g. Social networking (e.g., Facebook, Myspace) activities other than chatting
  - h. Shopping
  - i. Online gambling
  - j. Downloading
  - k. Searching for erotica
  - l. Dating
  - m. YouTube
  - n. Online forum participation
  - o. Banking/paying bills
  - p. Blogging

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