RUNNING HEAD: Mobile phone use

Over-connected? A qualitative exploration of the relationship between

Australian youth and their mobile phones.

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Abstract

In Australia, although youth are the most prolific users of mobile phones, there is little research investigating this phenomenon. This paper reports a qualitative exploration of psychological factors relating to mobile phone use amongst Australian youth. 32 participants, aged between 16 and 24 years, took part in focus group discussions. Thematic data analysis focussed on identifying the psychological benefits arising from mobile phone use and whether mobile phone addiction was occurring amongst this group. Mobile phone use was believed to provide numerous benefits to users and is an intrinsic part of most young people's lives. It emerged that some young people are extremely attached to their mobile phone with symptoms of behavioural addiction revealed in participants' descriptions of their mobile phone use. The study provides a solid foundation for further work investigating addictive patterns of mobile phone use amongst Australian youth.

Keywords:

Australia, youth, qualitative research, mobile phone, addiction.

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Australian youth and their mobile phones.

Similar to other industrialised nations, Australians have widely adopted mobile phone technology with over 80% of the population owning and using a mobile phone (Allen Consulting Group, 2005). It is within the youth cohort, however, that mobile phone use is at the highest with over 93% of Australian youth, aged 16 to 24 years, using a mobile phone (Galaxy Research, 2004). Whilst the majority of youth engage in appropriate use, some young Australians report regularly using their phone at high levels (over 25 times a day) and at inappropriate times (for example, in cinemas and when driving; see Walsh and White, 2006).

The popularity of mobile phones amongst youth is due, in part, to psychological benefits arising from use. Use of a mobile phone increases social inclusion and connectedness (Mathews, 2004; Wei & Lo, 2006) amongst a cohort in which friends and peers are highly influential (Smetana, Campione-Barr, & Metzger, 2006). Personalisation of mobile phones by ring-tones and screensavers can reflect an individual's self-identity (Srivastava, 2005) and some young users believe that using a technologically advanced mobile phone improves their status amongst peers (Ozcan & Kocak, 2003). Young females, in particular, report that having mobile phone imparts feelings of safety and security, especially when they are alone at night, as they are able to quickly contact others should an emergency arise (Carroll, Howard, Peck, & Murphy, 2002). Thus, mobile phones provide a sense of reassurance for some users. In addition to benefits resulting from mobile phone use, however, problematic outcomes have been noted.

High levels of debt from excessive mobile phone use (e.g., Griffiths & Renwick, 2003) has led some young people to steal to pay their phone bill (Netsafe, 2005). Classrooms (Selwyn, 2003) and social environments (ACNeilsen, 2004) are disrupted when mobile phones are used at inappropriate times and mobile phone use when driving leads to an increased accident risk (e.g., Haigney & Westerman, 2001; McEvoy et al., 2005). Younger drivers are more likely, than any other age group, to use a mobile phone when driving (Glendon & Sutton, 2005), presenting a significant safety risk in a cohort who are over-represented in crash statistics (Catchpole, Cairney, & Macdonald, 1994). Recent research has linked problematic mobile phone use (such as when driving) with addictive behaviour (Bianchi & Phillips, 2005; James & Drennan, 2005).

Additionally, Cassidy (2006) argues that there are similarities between young people's mobile phone use and addictive behaviour (specifically, smoking). Using a social identity framework (Turner, 1991) Cassidy's work reveals that youth associate mobile phone users with a number of positive attributes (such as successful and popular) previously associated with smokers. Young people may engage in the activity so that they are associated with the perceived positive attributes subsequently enhancing their membership in the social group. Positive peer approval is valued by youth, and, as such, mobile phone use may fulfil some of the functions previously provided by smoking (such as social approval). Cassidy concludes that mobile phone use amongst youth may potentially comprise a positive, rather than a negative addiction, *in which* benefits outweigh the costs of the behaviour (Glasser, 1985) .

Youth are highly responsive to social pressures to engage in addictive behaviours (Orford, 2001) and social identification has previously been linked with young people's

commencement and continued performance of addictive behaviours including drinking (Johnston & White, 2004) and gambling (Delfrabbro & Thrupp, 2003). Addictive behaviours are characterised by excessive performance of an activity with continued performance in spite of negative outcomes (Orford, 2001). As youth engage in the highest level of mobile phone use (Galaxy Research, 2004) and problematic mobile phone use is most prevalent amongst younger users (Bianchi & Phillips, 2005), it can be argued that mobile phone addiction is most likely to occur amongst this cohort.

Diagnosis of addictive behaviour, however, can be problematic as symptoms may vary according to the behaviour in question (Lemon, 2002; Orford, 2001). Thus, Lemon (2002) advises that a thorough investigation be conducted to determine symptoms specific to the behaviour. As such, this study explores the potential indicators of mobile phone addiction amongst Australian youth. The study uses Brown's (1993; 1997) addiction criteria as the framework for investigating addiction indicators. Results from the study will build upon the previous research signalling the emergence of a new form of behavioural addiction. Additionally, results will provide a solid foundation for developing a targeted investigation of mobile phone addiction using the specific indicators identified in this study.

Addiction Indicators

Technological addictions, or non-substance addictions involving excessive human-machine interactions, develop when people become reliant on the device to provide psychological benefits, such as, an expected reduction in negative mood states or an expected increase in positive outcomes (Griffiths, 1999; Shaffer, 1996). As individuals use the device more often to obtain pleasurable outcomes excessive use leads

to addiction (Charlton, 2002; Orford, 2001). In contrast to substance-related addictions, technological addictions may not produce observable signs or symptoms (such as physiological indications of cravings) and the addicted individual may appear to be behaving in a normal and socially acceptable manner (Griffiths, 1996; Lemon, 2002) making diagnosis problematic. One framework used to investigate technological addictions are criteria developed from Brown's (1993; 1997) components of behavioural addiction.

Originally applied to pathological gambling (Brown, 1993) and offending (Brown, 1997), Brown's criteria have measured technological addictions such as computer addiction (Griffiths & Hunt, 1998); internet addiction (Charlton, 2002) and addiction to online game playing (Charlton & Danforth, 2005). Similar to the Diagnostic and Statistical Manual of Mental Disorders (4th edition, text revision; DSM-IV TR), substance dependence criteria (APA, 2000) symptoms such as salience; conflict; euphoria; tolerance; withdrawal; and relapse and reinstatement (see Table 1 for definitions) are symptomatic of behavioural addictions (Brown, 1993). Brown's criteria, however, emphasise the psychological and behavioural symptoms of addiction rather than physiological symptoms which may be present in substance-related disorders.

It is yet to be determined whether all of Brown's (1993, 1997) criteria apply to technological addictions as some users of technology may engage in excessive or over-use without displaying addictive tendencies (Charlton & Danforth, 2004). Although symptoms of addictive behaviours may vary according to the behaviour in question (Lemon, 2002; Orford, 2001), the most defining feature is over-attachment to an object or behaviour with the behaviour continuing in spite of noted negative outcomes (Nakken,

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1996; Orford). The prevalence of mobile phone use amongst Australian youth (Galaxy Research, 2004), the continued use of mobile phones in spite of problematic outcomes (Bianchi & Phillips, 2005), and the emerging theme of potential mobile phone addiction (Cassidy, 2006; James & Drennan, 2005), provides a basis on which to explore the degree to which Australian youth are showing symptoms of behavioural addiction.

Overall, there is little psychological research investigating mobile phone use amongst youth, particularly in Australia, with previous research generally comprising quantitative studies (e.g., Bianchi & Phillips, 2005; Mathews, 2004; Walsh & White, 2006, in press). Whilst quantitative studies provide useful broad-scale information regarding behaviour, they do not allow for an in-depth exploration of people's behavioural influences (Mitchell, 2004). In contrast, a major advantage of a qualitative approach is the ability to understand the experiences of the people who engage in the behaviour of interest (Elliott, Fischer, & Rennie, 1999). By listening to participants and checking with them that their perspectives are correctly understood throughout the data collection process (member checking, Murphy & Dingwall, 2003), qualitative studies provide a unique insight into people's lives. Thus, this study uses focus group discussions as a qualitative approach to obtain a rich description of young people's mobile phone use (Strauss & Corbin, 1998). Using Brown's (1993, 1997) behavioural addiction criteria as the foundation for this exploratory research into mobile phone addiction is believed to strengthen the theoretical framework of the study.

Method

Design

The study was qualitative investigation of young people's perceptions of mobile phone use in their lives. Focus group discussions were utilised as the data collection method.

Participants

Thirty-two participants (13 males and 19 females), aged between 16 and 24 years ($M = 19.59$, $SD = 2.37$) were recruited by a snowballing method. An email explaining the study was composed and forwarded to contacts of the researcher who subsequently forwarded the email to their networks. Participants were entered into a prize draw to win a shopping voucher. The final focus group, conducted to confirm emerging themes and verify that saturation had been reached comprised first year psychology students who received for partial course credit. Six focus group sessions ranging from three to seven participants were conducted. Four groups were mixed gender and the two remaining groups comprised females or males only. It is acknowledged that different participation incentives and group composition may have impacted on results; however, the incentives were not emphasised during recruitment and the same procedure was used for each group providing a similar experience across the groups. Consistent with our belief that incentives and composition did not influence results, data analysis revealed similar themes emerged in the discussions irrespective of differences in group composition or incentives.

Participants were required to use their mobile phone at least once per day. The application of this minimal inclusion criterion resulted in a range of mobile phone owners being included. Participants used their phones between once to more than 25 times per

day and length of ownership varied from 2 months to 8 years indicating a good spread of experience. Additionally, participants' occupations varied widely with full-time students, trade and office workers, and high level white collar workers being represented. Thus, it appears that the participants in the focus groups, whilst not representative of the whole population of Australian youth, represented a cross-section of young Australian mobile phone owners.

Materials

A focus group discussion guide was developed prior to the commencement of the groups. The discussion guide contained a series of discussion points and suggested questions which began with more general mobile phone use questions, (e.g., "What do you mainly use your mobile phone for?") to more specific situational questions (e.g., "I'd like you to think of a situation where you are asked to turn your mobile phone off. What do you do with your phone in those situations?") The final set of questions related to problems arising from use (e.g., "Have you experienced any problems from using your mobile phone? If so, can you explain what happened?") and addictive use (e.g., "Thinking about addiction, do you think that there is a potential for people to become addicted to their phones? If so, what would be happening that would indicate its occurrence?"). The discussion was allowed to move beyond the specific topic raised in the focussing question to allow new concepts and themes to emerge.

Procedure

The researcher moderated the focus group sessions which lasted approximately 1 hour. Each focus group was audio-recorded. Ethical procedures (e.g., written consent, freedom to withdraw at any time, de-identification during transcription) were followed at

all times as specified by the Queensland University of Technology Human Research

Ethics Committee guidelines (project number 600000319).

Participants were invited to discuss each focussing question amongst themselves

and to be open and honest as there were no right or wrong answers to the questions. The

moderator probed for clarification if required and used validation comments (e.g., "thank

you for that comment") throughout the discussions. At the conclusion of discussion on

each question, member checking (Murphy & Dingwall, 2003) was conducted.

Participants' general comments and a summary of the discussion were stated. This

process ensured that the researcher understood participants' perspectives and allowed

participants to clarify or confirm any ambiguous points. Additionally, this strategy

enabled participants to understand what the researcher had interpreted from the

conversation so that their views were respected (Murphy & Dingwall).

Following the conclusion of each focus group, the researcher noted any questions

which lacked clarity or resulted in new themes being uncovered. As a result of this

process, questions were refined over the duration of the focus groups. Data collection

ceased once no new themes emerged, indicating theoretical saturation had been reached

(Morgan, 1998).

Data Analysis

At the conclusion of each session, the researcher transcribed the audio-tape

discussions verbatim. Throughout the transcription process, the researcher noted

concepts which were repeated across the groups, allowing for the identification of

common concepts. Once transcription was completed, thematic analysis was conducted

using a qualitative software analysis program (NVivo) (QSR, 2002). First, data were

coded into the broad categories of each focussing question. Each category was then analysed for evidence of the general concepts which the researcher had noted throughout the discussion and transcription process. Common concepts, which emerged in the focussing questions across the focus groups, were identified as themes. Finally, the discussions were analysed for symptoms of addictive behaviour as described in Brown's (1993, 1997) addiction criteria

An iterative process was used in which transcripts were coded and re-coded until no new themes or addiction symptoms emerged. Additionally, commonalities and differences amongst participants' views were noted so that confirming and dis-confirming data were categorised (Miles & Huberman, 1994). By checking previous coding throughout analysis and developing themes from common data, it is believed that a thorough analysis was conducted and the data comprehensively and accurately represent participants' perspectives.

Results

The results section first describes themes that emerged in relation to young people's general mobile phone use. Both advantages and disadvantages of mobile phone use emerged. Second, participants' understanding of potential mobile phone addiction is explored. Finally, the results of exploring participants' discussions of their mobile phone use for symptoms of Brown's (1997) behavioural addiction criteria are reported. Major themes for each section are described in Table 2.

General Mobile Phone Use

Apart from being a communication tool, the mobile phone offers the advantage of performing many other functions in participants' lives. During the discussions it

emerged that mobile phones have replaced many traditional devices, such as alarm clocks, cameras, diaries and phone books. For example:

> I do use my alarm clock and I set a lot of reminders. I don't like using a diary, cause I keep forgetting to look at it. (Female, 18)

> …now that I've got my phone it's great having the digital camera on it … Handy. But, yeah, mostly the alarm clock and things like that. Oh and the calendar, I put birthdays in. (Female, 22).

> …I don't have a diary or anything like that so I use it for keeping everyone's phone numbers. (Male, 22).

It emerged that there were disadvantages to relying on the mobile phone. For instance, participants consistently mentioned that if they lost their phone they would be unable to contact others as demonstrated in the following quote:

> I couldn't contact 90% of my friends or family without it. I don't have anyone's numbers, that's my phone book. (Female, 18).

Females, in particular, identified that having a mobile phone provided them with feelings of increased safety. Participants described times the phone had been used in emergency situations and discussed how they felt reassured because they would be able to use their mobile phone to contact others if an emergency arose. Statements illustrating this concept are:

> It's a security blanket… it makes you feel much safer. (Female, 16).

…if you're driving and you break down, I'm more confident having a mobile on

me, rather than if it was night sitting in the dark or having to find a payphone.

(Female, 22).

The most commonly identified benefit of using a mobile phone was convenience

due to ease of contact. Participants regularly discussed the benefits of being able to

contact others, or to be contacted by others, irrespective of time and location as shown in

the following examples:

The convenience factor again. When you're in the middle of nowhere in the

middle of the night and you've got to call a taxi that sort of thing. (Male, 22).

 … because I'm at uni and stuff … I can call or someone can contact me pretty

much any time… it can be during the day, during the night or the weekends.

(Female, 18).

The above comment, however, raises an interesting issue. Whilst participants

identified it was very important to be readily contactable, they also commented that this

was a disadvantage as contact can occur at inappropriate times. For example,

I'll read it in the cinema cause I don't want to sit through the movie and then find

out that I was you know I was supposed to be somewhere or my parents needed

me or something like that. (Female, 18).

…it gets you pretty annoyed when people ring you when you're having a good

dream or whatever and they wake you up. (Female, 20).

Overall, though, participants indicated that the positive benefits provided by

mobile phones outweighed the negatives resulting in the mobile phone being an integral

part of young people's lives, so much that they could not imagine being without it. The following quotes illustrate the value of the mobile phone to young people:

> I think it really becomes a part of you because it's with you more than anything else in the world…like I feel naked without my phone. (Female, 16).
>
> It's like an appendage… you're never without it. (Male, 20).

Given that addiction is defined as being over-attachment to an object or behaviour (Orford, 2001), the previous comments illustrating the level of attachment some people have to their mobile phones suggest that some young mobile phone users may be tending towards addictive behaviour..

Addiction Symptoms

Addiction symptoms were analysed by two methods. First, as part of the discussions, participants were asked if they believed addiction could occur and, if so, what would be happening that would indicate its occurrence. These responses were coded as participants' perspectives on addiction were it to be a phenomenon and were analysed separately to the remaining data. Second, once the participants' views of addiction as a potential phenomenon were removed from analysis, the remainder of the discussions were analysed for symptoms of addiction amongst participants' general discussions of their own general mobile phone use using the theoretical framework of Brown's (1993, 1997) addiction criteria.

> *Participant's perspectives on addiction.*

The majority of participants expressed a view that mobile phone addiction could occur:

> I think a lot of people are addicted to their phone. (Female, 17).

… everything's so technologically advanced. It could happen quite easily I think. (Female, 18).

In contrast, some participants expressed a view that it was not possible to be addicted to technological advice, for instance:

It's just a tool, an aid to everyday life. (Male, 22).

When asked for how addiction would be evidenced, participants were quick to respond with examples of excessive use:

I guess to identify it, people who are getting into financial trouble as a result of it. If you're using it that much that it's going to be costing you more than you can afford. (Male, 24).

I think it could be also, you know, that if they heard a ring, they have to answer it. (Female, 18).

… always having it in their hand, checking it regularly. (Male, 20).

I think just over-using it, like to call people that don't want to hear from them or something or just calling for no reason. (Female, 16).

There was much discussion amongst participants regarding whether people were addicted to the mobile phone or to the benefits using a phone provided. This concept is illustrated in the following quotes:

 … after you get over the euphoria of having a phone, like a cool phone, then after that it's just the contacting that you get addicted to. (Male, 19).

It's not like when people quit smoking and they always need to have something in their hand. It's not like that. Like people addicted to texting, it's like being able to talk to somebody else who could be ages away, just in a second. (Male, 17).

Some participants considered the potential for mobile phone addiction, as follows:

Like it's not cigarettes or ecstasy or anything so what harm can it be? … I just

think there are worse things... (Female, 19).

Whilst the above approach revealed that participants believed addiction could

occur and identified behavioural symptoms, such as compulsive checking, it did not

reveal whether addictive tendencies were indicated amongst the focus group participants.

Thus, the second approach to investigating addiction symptoms was to analyse the

conversations for evidence of Brown's (1997) behavioural addiction criteria.

Indicators of addiction in participant's discussions

Salience.

Cognitive salience, in which the mobile phone overrides other thought processes

(Brown, 1997), is illustrated in the following quotes in which participants mention how

they think about their mobile phone when trying to focus on other activities:

I get distracted so, that's when I have it on me, so it's not too good … I'm trying

to focus on the lecture but my phone's my distraction. (Female, 22).

Normally I just want to find out who messaged me, like, and then I can't really

concentrate on the lecture unless I text back. (Male, 20).

In addition to the mobile phone dominating thoughts at certain times, there was

also evidence of behavioural salience. One participant described how he would not go on

holidays to places where he had no mobile phone reception as using his phone was so

important to him. Behavioural salience was primarily revealed as regularly using or

checking their phone throughout daily activities, as follows:

Personally, I'm addicted to checking if I have a phone call or text. If I walk past

it, I have to check it ..always. (Female, 19).

I wake up and check my phone straight away … I'll have a shower, then I'll come

back and I'll check the phone. (Female, 16).

The previous comment led another participant in the same focus group to comment:

Well, I take mine in the shower. (Female, 16).

Conflict with other activities.

As illustrated in the above comment behavioural salience can lead to a conflict

with other activities (Brown, 1997). Throughout the focus groups, participants

consistently described how their mobile phone use interfered with other activities, such as

work, driving, and social activities, as demonstrated in the following quotes:

I always check my phone at work to see if anyone's messaged me. (Female, 17).

I don't have a handsfree so but every now and again if someone SMSs me and

I'm in the car I'll just quickly tap something out. (Male, 22).

… if it like, calls or something, and you're in the movies or in the middle of a

class and your phone rings … I get embarrassed. (Female, 16).

In contrast to behavioural salience, interpersonal conflict was not highly evident

as participants did not report that their mobile phone use led to conflict with other people.

Euphoria or relief

According to Brown (1997), the concept of euphoria relates to a feeling of short

term pleasure from engaging in the behaviour. Examples included:

…with messages and when you get something you're like something's there, someone wants to talk to me, and you just feel anxious or excited or whatever and you want to actually pick it up or answer it. (Female, 19).

I get excited like say if I have one message received I'm like, yeah, sweet, check it. If there's like 2 or 3 messages I'm like, YES, who's it from kind of thing, like I get excited because I've got a lot of messages. (Female, 17).

Most commonly, however, euphoria related to feeling valued or loved when calls and messages were received as illustrated in the following quotes:

… you feel loved. It's just so random. You get happy that you know that someone's thinking about you… (Female, 18).

It makes you feel pretty popular if on a Friday night you get like 5 or 6 calls in 20 minutes or something like that so, like, you feel good. (Male, 20).

Loss of control or tolerance

In contrast to the traditional concept of tolerance which involves engaging in the behaviour at increasingly higher levels to attain euphoria (Brown, 1997), it appears that excessive mobile phone use is related to a loss of control over how much the phone is used. Some participants reported that they were surprised at their level of use which was reflected in high bills or running out of credit, for example:

I tell myself I don't call anyone but my bill always comes with a 40 dollar part of just calls, … I don't even know when I do it. (Female, 17).

I get too wrapped up in it and forget about the time. (Female, 19).

An exception to losing control was revealed by a few participants who reported that they monitored their use to remain within the budget they had allocated for their mobile phone use, for example:

I'm conscious that, you know, it's obviously up to the limit so I try not to go past it. (Female, 24).

Withdrawal

Withdrawal refers to experiencing unpleasant feelings when unable to engage in the behaviour (Brown, 1997). In discussions about how participants felt at times when they had not been contacted on their phone or if they were unable to use their phone, some level of personal distress was noted. For instance:

If no-one has contacted me I get really depressed and I'm like oh no-one loves me. (Female, 17).

I feel, like, mainly anxious with my phone when it doesn't work. (Female, 16).

Rather than anxiety or depression, a stronger theme that emerged was feeling disconnected from other people when unable to use their phone:

Well for like 4 hours without it, huh, I thought I was going to miss out on everything and have trouble getting in contact with everyone. Yeah, I felt I was going to miss out on everything, lost, a bit like that. (Female, 19).

You feel cut off because you need someone …you need to be able to have that connection. (Female, 18).

… it's that thought that someone might be contacting you and I don't want to miss it. (Male, 20).

During the discussions, participants were asked how they would feel if they were told they would be unable to use their phone for the next 3 days. The majority of participants stated that they would resist any attempts to prevent them from using their phone, as follows:

I'd put up a fight. (Female, 17).

No way I'm going without it. (Male, 20).

If the situation did occur, however, most participants reported that they would feel distressed:

I'd be so angry at myself. I couldn't do without it. (Female, 17).

In contrast, some participants reported that they would utilise alternative communication channels, such as email, or landlines. An interesting revelation was most participants took preventative measures to ensure that they were not without their mobile phone (such as always having a battery re-charger with them), subsequently limiting the potential for withdrawal to occur.

Relapse and reinstatement

Relapse and reinstatement is indicated when people unsuccessfully attempt to cut down on the behaviour, subsequently engaging in similar or higher levels than previously (Brown, 1997). Throughout the conversations, there was little mention of attempting to reduce mobile phone use. The exception was one participant who had been in financial trouble for excessive mobile phone use. She describes her attempt to reduce her phone bill in the following quote:

…when I had my big bills, the only time I tried to cut down was when I finished

(my contract) and I well, I tried, I think for years and they didn't get that much

lower. (Female, 22).

Discussion

This study aimed to explore the role of mobile phone use in young people's lives

and whether mobile phone addiction is indicated in this cohort. Results revealed that, in

general, mobile phone use plays an integral part in the lives of young Australians and has

become more than a tool for communication. The mobile phone has replaced some

traditional devices, such as cameras and diaries, for some users, with some young people

reporting they were so attached to their phone that they felt the mobile phone was a part

of them. Given the integration of mobile phone use into young people's lives and the

number of functions that mobile phone use provides (e.g. use of tools and ease of contact),

it is not surprising that some young people are extremely attached to their mobile phone.

As over-attachment to a behaviour or object is considered to be a defining feature

of addictive behaviour (Orford, 2001), participants were asked whether they believed

mobile phone addiction could occur. There was general consensus that mobile phone

addiction could occur and participants identified that behaviours, such as compulsive

checking and inappropriate use, may be symptomatic of addictive use. It was interesting

that some participants rationalised that mobile phone addiction, if it were to occur, would

not be as harmful as negative addictions such as smoking or drug use.

To further identify whether mobile phone addiction is occurring, discussions were

analysed for signs of Brown's (1993, 1997) behavioural addiction criteria amongst

participants' descriptions of their general mobile phone use. Symptoms of behavioural

and cognitive salience, conflict with other activities, euphoria, tolerance, withdrawal and relapse and re-instatement emerged at varying levels amongst participants' descriptions of their mobile phone use. Throughout the discussions, salience was indicated when participants discussed thinking about the phone when not using it (cognitive salience) and regularly checking the phone (behavioural salience). The high salience of mobile phone use was linked to conflict with other activities as participants reported thinking about messages in lectures and using the phone in cinemas. It must be noted, however, that some young people indicated they turned their phone off at times when it would be considered inappropriate to use it. It may be that conflict with other activities differentiates people who are addicted from those who are not. For instance, people who are addicted to their mobile phone may be unable to resist using the phone in situations where it is inappropriate whilst people who not addicted may be able to control their mobile phone use when required. Charlton and Danforth (2004) argue that addictive behaviour differs from excessive behaviour. Future research, then, could attempt to identify the specific symptoms that differentiate addictive and non-addictive mobile phone use.

There appear to be some differences between traditional addictive symptoms and potential symptoms of mobile phone addiction. In contrast to traditional addiction research in which euphoria is generally associated with a feeling of excitement at the prospect of engaging in the behaviour (Brown, 1997), euphoria from mobile phone use appears to be related to feeling valued or loved when calls or messages are received. Participants discussed the positive feelings that arose from being contacted on their phone. Thus, it may be that, rather than euphoria leading people to make calls or send messages,

it is a response to others' behaviour. Additionally, tolerance was indicated when some young people reported losing track of how much they use their phone rather than needing to engage in the behaviour at higher levels to attain euphoria (Brown, 1997).

Whereas withdrawal generally comprises physiological or psychological distress (APA, 2000) when unable to engage in the behaviour, severe distress did not emerge in participants' conversations about times they were unable to use their phone. Rather than feeling distressed, most participants reported feeling disconnected from others. Thus, it appears that it is the lack of contact with others that underpins feelings of withdrawal. It must be noted, however, that participants mentioned taking preventative measures (such as making sure their phone is constantly charged) to reduce the potential for withdrawal to occur. During the discussions, there was only one instance of a participant identifying behaviour similar to relapse and reinstatement suggesting that this concept may need further exploration in future studies. Alternatively, it may be that participants were happy with their level of use and did not see a reason to reduce it, particularly those who reported monitoring their level of use to remain within budget.

One of the most interesting results in this study is the complexity of potential mobile phone addiction. Whilst symptoms of behavioural addiction were evidenced, a strong theme was that the mobile phone was a tool which facilitated young people's connectedness to others. Thus, it may be, as Cassidy (2006) suggests, that mobile phone use is a positive addiction in which positive benefits are derived from the behaviour (Glasser, 1985). However, as Orford (2001) warns that positive addictions may develop into negative addictions when adverse consequences (such as withdrawal when unable to

engage in the activity) over-ride the benefits of the behaviour, future research could attempt to delineate outcomes of positive versus negative mobile phone addiction.

Whilst this study provided important information regarding the intrinsic role of mobile phone use in young Australians lives, a number of limitations are evident. First, a previously developed model, Brown's (1993, 1997) behavioural addiction criteria, formed the theoretical basis to examine whether mobile phone addiction was indicated amongst participants. The use of addiction criteria is limited in that it provides a classification of symptoms only without any explanatory basis for the factors influencing people's tendency towards addiction. It is believed, however, that the initial identification of symptoms of mobile phone addiction in this study provide a foundation for further research investigating the pre-cursors of mobile phone addiction in young people.

Additionally, although we believe Brown's (1993, 1997) addiction criteria provided an appropriate framework to initially determine whether mobile addiction is indicated, analysis may have been limited to pre-determined symptoms. As symptoms of addictive behaviour vary according to the behaviour in question (Lemon, 2002; Orford, 2001), it is possible that additional symptoms, specific to mobile phone addiction, may have been overlooked. Thus, future research could adopt a grounded theory approach (see Strauss & Corbin, 1998) to uncover further themes relating to mobile phone addiction and to identify differences in addictive and non-addictive behaviour. Alternatively, drawing upon other relevant theoretical frameworks of addiction to understand the development of mobile phone addiction may prove useful.

Finally, the sample in this study was limited to mobile phone users. Although there was a wide range in experience and level of use, most participants identified they regularly used their phone. Inclusion of participants who do not use a phone or who rarely use their phone would allow for comparison of experiences. Thus, the characteristics of addictive versus not addictive mobile phone use may be more clearly identified. Decisions on whether a behaviour is addictive depend, in part, on understanding the benefits derived from the behaviour (Gaffney, Thorpe, Young, Collett, & Occhipinti, 1998). Further exploration of psychological reasons for use may assist in identifying those people who are more or less likely to engage in addictive use.

In conclusion, this study provided an initial investigation into the role of mobile phone use in young Australians' lives, a previously under-researched area. It was shown that mobile phones have become an intrinsic part of the lifestyle Australian youth, with some young people demonstrating symptoms of addictive behaviour. The use of Brown's addiction criteria (1993, 1997) as the theoretical framework of the study allowed for the identification of symptoms of mobile phone addiction amongst participants' discussions of their mobile phone use. Results in this study provide a useful foundation to design further research investigating the impact of mobile phone technology on the lives and well-being of youth in Australia and elsewhere.

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