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*Smartphone distraction-addiction: Examining the relationship between psychosocial variables and patterns of use*

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Smartphone Distraction-Addiction: Examining the Relationship between Psychosocial  
Variables and Patterns of use

Dr Humberto Oraison, Olivia Nash-Dolby, Dr Bruce Wilson, Ridhi Malhotra, Joanne Banks

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Dr Humberto Oraison. College of Health and Biomedicine -Victoria University. Melbourne - Australia

Olivia Nash-Dolby. Monash University. Melbourne - Australia

Dr Bruce Wilson. Mind Health Care. Geelong - Australia

Ridhi Malhotra. Monash University. Melbourne - Australia

## Abstract

### Objective

The use of smartphones has been increasing worldwide. Usage of these devices is strongly present within the Western World and has been associated with addiction and adverse emotional states. This study employs a mixed methods approach to study these relationships in an Australian sample.

### Methods

The study comprised of 204 participants who completed a battery of questionnaires. Seven participants were also interviewed providing answers of qualitative nature.

### Results

Smartphone addiction significantly predicted higher levels of smartphone usage. Additionally, smartphone addiction, and distractibility also significantly predicted higher levels of stress, depression and anxiety. Qualitative results identified themes such as convenience, time of the day and activities in relation to smartphone usage as well as short- and long-term effects of this usage.

### Conclusions

Findings indicated that both distraction and addiction have an influence in the use of smartphones and that an increased usage has detrimental consequences to emotional health. Themes such as dependence, temptation and interferences appear congruent and consistent with the results of scales used.

**Keywords:** smartphone, distraction, addiction, mindfulness, stress, anxiety and depression

What we already know:

- \* There is significant increase of smartphone usage
- \* There are addictive behaviour tendencies towards smartphones.
- \* There is evidence of negative emotions associated with smartphone usage.

What this topic adds:

- \* Addiction and Distraction contribute to higher rates of smartphone usage.
- \* Distraction and Addiction were found to be associated but independent phenomena.
- \* Addiction and Distraction predicted higher rates of stress, anxiety and depression.

## Smartphone Distraction-Addiction: Examining the Relationship between Psychosocial Variables and Patterns of use

Usage of smartphones have become increasingly popular worldwide, individuals with smartphones use the device an estimated 150 times per day (McIlroy, 2015). Smartphones are recognised as mobile devices that are capable of numerous functions such as browsing the internet, telecommunication, and accessing a plethora of applications (Ward et al, 2017). Today the smartphone has become a repository of the self, acting as a personal journal through videos, photos and notes taken over years. While smartphones have made us a more interconnected society and provide users with the ability to be online at any time and place, the increased usage and daily dependence of these devices may carry negative consequences (Ward et al, 2017). The existing literature has demonstrated that individuals are

demonstrating addictive behaviours regarding smartphone usage leading to severe negative emotional and social repercussions (Roberts et al., 2014), however the literature demonstrates the nature of this addictive behaviour stems from the distractibility of the smartphone (Madden & Jones, 2008; Silverman, 2012). Addiction refers to the relentless use of a substance or activity that becomes compulsive and impairs everyday functioning (Rozgonjuk et al., 2018). While distraction is the diversion of attention and thought from one task to another, in regard to smartphones people seem to enjoy putting off essential task and perform menial tasks on their devices (Weksler & Weksler, 2012). Both concepts are widely recognised in the literature on smartphones, subsequently this study operationalised the term “distraction-addiction” which is the repetitive diverting attention and thought from daily or essential tasks to intentionally indulge in a compulsive desire. This study suggests that distraction-addiction will provide a greater understanding of smartphone usage and its repercussions.

Today, social media has become the place where many young individuals engage in the most social activity, however most people do not perceive this as an issue (Ward et al., 2017). The average American now spends 11 hours a day looking at electronic screens (The Nielsen Group, 2015). The increase usage in smartphones has been attributed to improvements in technology and the range of online, particularly social, activities that can be performed through smartphones (Meagher, 2017). However, should increase smartphone usage be considered an issue, if they are enhancing the convince of our daily lives and facilitating communication between individuals? In some situations, they have proven to be quite harmful: a staggering 47.2% of road accidents were attributed to mobile phone use while driving (Zhou, et al., 2016). Furthermore, frequency of smartphone use in lectures at university might explain declining academic performance (Rozgonjuk et al., 2018).

Unfortunately, research into smartphone usage has demonstrated significant repercussions; students report higher levels of anxiety in class due to a need to check their phones (Rosen et al, 2012). Additionally, online presence and Facebook use has been associated with clinical symptoms of major depression (Davila et al., 2012; Rosen et al, 2012). Like many other patterns of behaviours, research indicates the negative emotional repercussions from smartphone usage such as associations with anxiety and depression derive from addictive behavioural tendencies towards smartphones (Andreassen et al., 2016). Thomee (2012) proposed the negative emotional effects from and addictive behaviours towards smartphone used could stem from three possibilities: (1) the demand of always being reachable; (2) nomophobia, the fear of missing out from not checking your phone; and (3) the distractions caused by smartphones impeding commitments in our personal life such as commitments for school or work.

A growing body of research confirms that overuse of devices such as the smartphone or other electronic media increases stress and anxiety (Rosen et al., 2013), interferes with disconnecting fully from work (Madden & Jones, 2008), disrupts concentration at work (Silverman, 2012), causes sleeping problems and depression (Thomee, 2012), increases distracted-driving and distracted pedestrian accidents (Weksler &Weksler, 2012), interferes with learning processes (Richtel, 2010), and reduces multitasking success (Sanbonmatsu et al., 2013). Additionally, Leynes et al. (2018) found that smartphone use slowed behavioural responses and concluded that smartphones have a large distracting effect. Lastly, Andreassen (2015) discovered that addictive smartphone usage can also develop into a social media addiction, which impairs self-esteem, work performance, and may create interpersonal conflicts. Roberts et al. (2014) reported that 60% of U.S. university students consider themselves to have a smartphone addiction.

The review of literature revealed that smartphone use has been increasing globally, and this may carry negative affective and social consequences for users of smartphones (McIlroy, 2015; Rosen et al., 2013; Rozgonjuk et al., 2018). The aim of this study is to employ a mixed-methods research design to determine what factors contribute to increased smartphone use within an Australian sample, and whether distraction-addiction contributes to greater negative emotional states. Firstly, it is hypothesised that self-reported smartphone addiction and distractibility will significantly and positively predict smartphone usage. Secondly, it is hypothesised that the combination of self-reported smartphone addiction and distractibility will significantly and positively predict stress, anxiety and depression, with higher levels of distraction-action resulting in greater negative affect.

## Method

### Participants

In this study, 164 participants aged between 18-70 ( $M = 32.27$  years,  $SD = 12.50$  years) were recruited via convenient and snowball sampling from Victoria University campuses, and online via social media (e.g., Facebook). Participants comprised of 118 females (72%) and 46 males (28%). Seven participants completed both the qualitative and quantitative components of the current study. Table 1 presents their self-reported demographic information.

Table 1

*Table of Participant Demographics from Qualitative Interviews*

Participant Code	Gender	Age Bracket	Education	Location	State
P1	Male	45 - 54	Postgraduate	Urban	Victoria
P2	Male	35 - 44	Vocational	Urban	Victoria
P3	Female	25 - 34	Secondary	Urban	Victoria
P4	Male	35 - 44	Vocational	Urban	Victoria

P5	Female	35 - 44	Tertiary	Urban	Victoria
P6	Female	35 - 44	Vocational	Urban	Victoria
P7	Female	35 - 44	Tertiary	Urban	Victoria

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## Materials

A purposely constructed demographic questionnaire requested information on age, gender, education level, socio-economic status (measured in self-reported annual income), and the reasons and frequency of smartphone use. The Depression, Anxiety and Stress Scale (DASS-21) was used to measure the three negative emotional states: depression, anxiety and stress (Lovibond & Lovibond, 1995). The Smartphone Addiction Scale (Kwon et al., 2013) was used to measure participants' level of smartphone addiction, with higher overall score indicating greater level of smartphone addiction. The Mindful Attention Awareness Scale (MAAS; Brown and Ryan, 2013) was used to measure participants' distractibility, the higher overall score on the MAAS indicated lower distractibility as a result of greater mindfulness.

An interview schedule was also developed specifically for the current study. Key questions from the interview schedule and some of the probing questions used in the interviews included:

1. *What do you normally use your smartphone for?*
  - a. *Example probes: What kind of apps do you use? Do you use it for entertainment? Do you use it for organisational purposes?*
2. *What factors, if any, do you feel influence your use of your smartphone?*
  - a. *Example probes: What time of day do you notice yourself using your smartphone the most? Are there situations where you don't use your smartphone as much as you normally would? What are those situations?*



3. *Can you share with me any effects that you notice when you are using your smartphone?*

a. *Example probes: What are the main advantages of having a smartphone?*

*What are the main disadvantages? How do you feel about smartphones becoming a part of everyday life?*

## **Procedure**

Each participant received a hyperlink or a QR code to a Qualtrics survey containing the online test battery. Participants completed the demographics questionnaire followed by the DASS-21, Smartphone Addiction Scale, and the MAAS. The survey data was imputed, collated, cleaned, and analysed using IBM® SPSS® Statistics Version 24. Following the survey, seven individuals participated in an interview. Interviews were semi-structured and conducted over the phone. They were between an average of twenty minutes in duration. The interviews were audio recorded with participant permission for subsequent transcription. The researchers omitted any information from the transcripts that was considered identifiable. Member checks were completed, whereby all participants were offered the opportunity to review the de-identified transcript of their interview, in order to amend anything that they believed was identifiable or not representative of their views.

## **Ethical Considerations**

Ethics approval for this study was obtained by the Victoria University Human Research Ethics Committee. Informed consent was gained by providing the participants with an explanatory statement before they completed the online survey and ensuring that they indicated their consent on the online survey prior to gathering any data. A protocol was developed for distressed participants. Participants were also advised that they were able to withdraw from the study at any point up until they had approved their interview transcript.

All data was maintained in an electronic format that was accessible only to the researchers in a password protected account.

## **Results**

### **Quantitative Results**

Four multiple regression analyses were run using the fore entry method. First multiple regression relates to hypothesis one and uses age, smartphone addiction, socio-economic status, and distractibility, to predict daily hours of estimated smartphone usage. The other three regressions were related to hypothesis two and sought to determine whether smartphone addiction and distractibility could predict levels of stress, depression, and anxiety.

All assumptions of multiple regression were tested and met using SPSS. Histograms and normal probability plots of regression-standardised residuals were constructed and revealed normality of residuals. Partial plots using the standardised residuals against standardised predicted values for were created each predictor variable. Each plot showed the points were randomly and evenly distributed indicating homoscedasticity. Furthermore, there were no signs of nonlinear trend indicating linear relationships between each predictor variable and the outcome variable. Max Mahalanobis distance value fell within the critical value indicating no multivariate outliers. Durbin-Watson value was near two, indicating the residuals values were uncorrelated, meeting the assumption of independent errors. Multicollinearity was tested through Collinearity Statistics. VIF values for each predictor variable were below 10 and Tolerance statistics were above 0.2, indicating the predictor variables were independent of each other.

With alpha set at .05, a significant model was found  $F(4,118) = 11.29, p < .001, adj R^2 = .259$ , 25.9% of variance in participants' estimated hours of smartphone use were predicted by the model. Table 2 presents the coefficient data for the analysis.

Table 2

*Results of the Forced Entry Multiple Regression Analysis using Addiction and Mindfulness Distraction as Predictors of Estimated hours of use per day*

Model	b	SE B	$\beta$	<i>p</i>
Constant	.953	.662		.152
Smartphone Addiction	.033	.008	.407	< .001
Distractibility	.004	.015	.029	.766
Age	-.026	.017	-.0165	.129
Socio-economic status		<.001	-.103	.309

*Notes.* Model  $R^2 = .259$ ; b = beta values; SE B = standard errors;  $\beta$  = standardised beta values.

With alpha set at .05, three significant regression models were found. Smartphone addiction and distractibility significantly predicted participant's stress levels  $F(2,115) = 29.07, p = .001, adj R^2 = .324$ ; participants' depression level  $F(2,116) = 15.69, p = .001, adj R^2 = .199$ ; and participants' anxiety level  $F(2,116) = 16.65, p = .001, adj R^2 = .21$ . Table 3, 4, and 5 presents the beta values, standard errors, and standardised beta values from the respective multiple regression analysis. Across all three regression models, distractibility remained a significant unique contributor to the models, while smartphone addiction only provided a significant unique contribution as a predictor of anxiety level.

Table 3

*Results of the Forced Entry Multiple Regression Analysis Using Addiction and Mindfulness as Predictors of Stress.*

Model	b	SE B	$\beta$	<i>p</i>
Constant	23.948	2.929		< .001
Smartphone Addiction	.011	.016	.062	.503
Distractibility	-.177	.030	-.543	< .001

*Notes.* Model  $R^2 = .336$ ; b = beta values; SE B = standard errors;  $\beta$  = standardised beta values.

Table 4

*Results of the Forced Entry Multiple Regression Analysis Using Addiction and Mindfulness as Predictors of Depression.*

Model	b	SE B	$\beta$	<i>p</i>
Constant	21.641	3.321		< .001
Smartphone Addiction	.003	.018	.014	.888
Distractibility	-.155	.034	-.453	< .001

*Notes.* Model  $R^2 = .213$ ; b = beta values; SE B = standard errors;  $\beta$  = standardised beta values.

Table 5

*Results of the Forced Entry Multiple Regression Analysis Using Addiction and Mindfulness as Predictors of Anxiety.*

Model	b	SE B	$\beta$	<i>p</i>
Constant	15.199	3.091		< .001
Smartphone Addiction	.034	.017	.198	.048
Distractibility	-.106	.032	-.332	.001

*Notes.* Model  $R^2 = .223$ ; b = beta values; SE B = standard errors;  $\beta$  = standardised beta values.

## Qualitative Results

Interview data were analysed with thematic analysis. The analysis involved multiple steps and was based on Braun and Clarke's 2006 guide to thematic analysis. Each researcher kept a log throughout the analysis, to promote consistency in data collection over time and observe the evolving process of new insights in the study (Graneheim & Lundman, 2004).

Three themes were identified: (1) factors influencing smartphone usage; (2) short-term effects associated with phone use; (3) long-term effects associated with phone use.

Associated subthemes are described below with representative quotes from the interviews.

Quotes are tagged with participant codes (P1, P2, P3...).

### Factors Influencing Smartphone Usage:

**Convenience.** Six participants indicated the “convenient” (P5 and P6) and “easy to use” (P2) nature of smartphones increased their use of the device. Participants discussed the “simplicity” (P2) of smartphones and how “everything is just there” (P3). Participant 7 noted that smartphones allow you to have “information at your fingertips”.

**Time of day.** Six participants stated that the time of day influenced their smartphone usage. They noted that whilst they use it “throughout the day” (P4), they use it more in “evenings and mornings” (P1). In particular, participants emphasised decreased use during “work” (P7) or “office hours” (P1).

All participants either directly or indirectly commented on the concept of phone etiquette, which was dependent on the time of day and situational context. According to participants, phone etiquette refers to “social norms” (P4) and “what is acceptable” (P4) smartphone use. For example, all participants reported that they would stop a face-to-face conversation to answer their phone, but “only [in] certain situations” (P4). This was exemplified by P4: “my son’s pockets beep all throughout dinner. But we’re not picking it up.”

**Activities.** Five participants stated that social, work, and leisure activities influence their smartphone use. Activities which increased smartphone usage were: “waiting” (P4 and P6) and “sitting on a packed train” (P4). Activities that decreased smartphone usage were: “driving” (P1), “working” (P1), time with “family members” (P1), “exercise” (P2), “watching [a] movie” (P3), doing “stuff around the house” (P4), “personal activities” (P5) and “socialising” (P6).

### **Short-term Effects:**

**Instant gratification.** Four participants reported that accessing information and entertainment on demand results in “satisfaction” (P2) and “instant gratification” (P4). Participant 3 commented on the satisfaction of accessing information instantaneously, saying

“we need to know the answer to something, so we’ll always get our phone out eventually.”

Participant 4 noted that “a notification comes in and it’s ... got this instant gratification”.

**Avoiding or delaying particular social situations.** Six participants also described using their smartphone to avoid or delay unpleasant social situations. For example, Participant 1 stated if he was at a social gathering where he didn’t know anyone, he would “pretend” that “there’s something really pressing on [his] phone.” Similarly, Participant 3 stated: “if I want to leave a party ... [but] don’t want to offend ... I’ll have my mum call me ... and then I’ll sort of make up an excuse to leave”.

**Communication/Connectedness.** Four participants referenced increased social connectedness due to smartphone use. Participant 3 emphasised the simplicity of communicating via a smartphone: “it’s so simple to just send a text”. Two participants (P3 and P7) also commented that they would prefer to communicate via message or text instead of face-to-face communication verbal conversations, but that this resulted in them “lose[ing] contact with people a lot more easily” (P7). Three participants were apprehensive that people are “so zoned in to our smartphones and what’s happening on the web and online that [we] don’t...communicate as much with each other” (P3).

**Distraction.** Six participants highlighted their smartphone caused distraction during conversations, at work and in social situations. Two participants (P2 and P4) spoke of being distracted by their phones in social situations as their attention is divided between “who I’m with” (P2) and “who it is that’s texting me” (P4). Participant 4 elaborated: “the phone rings or a message comes in, even just checking whether it is worth ignoring or not stops the conversation”. Participant 3 explained they put their smartphone away at work to prevent them from “picking it up...and looking through things ...and getting in trouble”. Similarly, participant 2 reported that he will leave his phone at home when “going to exercise to “remove the distraction”. Six participants also reported losing track of time when checking

smartphone notifications. Participant 3 recalled checking her smartphone to retrieve information: “I ended up replying to three text messages and two emails and then forgot what I was even doing on my phone”. Two participants (P2 and P7) reflected: “I’ll open it to look at something on the internet...then I’ll see I’ve got a Facebook notification and...wonder what it is” (P7) and “before I know it...an hour’s gone past” (P2). Conversely, participant 6 commented that their phone is “a good distraction” when struggling with symptoms of mental illness.

### **Long-Term Effects:**

**Dependence on smartphones.** Participants reported a dependence on their smartphones. Participant 3 disclosed that she was “too reliant” on her smartphone. She stated that she required the device “to be charged all the time” and always carried “a battery charger so it doesn’t die.” Participant 5 stated a “need” to have her phone at all times in the case of a “crisis or emergency”. Furthermore, six out of seven participants reported keeping their smartphone beside their bed when they slept, indicating a need for physical proximity to their device.

**Always contactable.** Three participants shared concerns that smartphones meant they were contactable at all hours. Participant 1 detailed that having a smartphone with you at all times meant there was pressure to respond to contact: “...without the smartphone you wouldn’t have any access to information like that. But you do have it, so you’re forced to act on it”. Participant 2 also voiced concerns that smartphones make it “a little bit too easy for employers to be in touch with their employees.”

**Temptation and conscious effort.** All participants identified a temptation to use their smartphones and recognised a conscious effort was needed to refrain from use. Participants indicated that this effort occurred in various activities as referenced in the activities subtheme

above. Two participants said they would “put the phone away” (P1) or leave it at home to “remove the distraction” (P3).

**Interference with daily activities.** Participants reported contrasting opinions on whether temptation to use their smartphones interfered with daily activities. Participant 1 stated that he did not “think it interferes”. Participant 2 reported that temptation did not interfere with daily tasks “to a great extent”, but qualified that sometimes he would not be “paying attention to a conversation” because he was “doing something on the phone instead of paying attention”.

Conversely, participant 7 also disclosed troubles with her smartphone use at work: “I actually got spoken to about it by my boss...I wasn’t conscious about how much I was looking at it.”

## **Discussion**

The aim of this study was to investigate the factors that contribute to increased smartphone usage in an Australian sample, and whether distraction-addiction contributes to greater negative emotional states. It was hypothesised that self-reported smartphone addiction and distractibility will significantly and positively predict smartphone usage. Secondly, it is hypothesised that the combination of self-reported smartphone addiction and distractibility will significantly and positively predict stress, anxiety and depression, with higher levels of distraction-action resulting in greater negative affect. Ultimately, the hypotheses were partially supported.

Only smartphone addiction levels produced a significant unique contribution to the model predicting daily smartphone usage. This finding is unsurprising, as individuals who report that they are addicted to smartphones would be expected to use their phones more frequently (Roberts et al., 2014; Thomee, 2012; Ward et al., 2017). It is unclear which factors lead to smartphone addictions, some research suggests smartphone addiction could stem from



impulsivity, or social media addiction (Andreassen, 2015). Another factor leading to addictive use of smartphones could be due to their versatility resulting in increased dependency on the smartphone (Carr, 2017; Meagher, 2017). Unfortunately, the current study provided no evidence of distractibility resulting in increased smartphone usage as the relationship was not significant. This could be due to a measure of mindfulness being reverse scored to produce a measure of distractibility.

The second hypothesis was also partially supported, a regression model including both smartphone addiction and distractibility significantly predicted stress, depression and anxiety. However, for depression and stress only distractibility was a significant unique contributor to the model. Although, these results need to be interpreted cautiously due to the manner in which distractibility was measured using a mindfulness scale. Regardless, the results from this study are in line with previous research (Andreassen et al, 2016; Rosen et al, 2012; Rosen et al, 2013; Sanbonmatsu et al, 2013 & Thomee, 2012). An explanation for the role of stress in smartphone usage may lay in what Thomee (2012) described as demands for availability related with both the need to check in and keep up with news and event and being in contact with social media and other media through the smartphone.

Distraction was also the unique significant contributor to the model predicting depression. While contributing to the overall model addiction scores were not statistically significant. These results partially agreed with other research that found depression to be associated with Internet and text message dependency (Rosen et al, 2013). A possible explanation for the differences in predictive power from distraction and addiction may lay in the type of use or activities with the smartphone. While gaming has been identified as an escape related to depression, social media usage may in fact diminish depression and dysthymia symptoms (Andreassen et al, 2016). Research has shown that relationship between usage of smartphone and depression was determined by the perceived outcomes of the users' interactions in social

media, as “positive” interactions were likely to reduce depression symptoms and “negative” interactions likely to increase those (Davila et al, 2012).

Anxiety has been identified as the most salient psychological marker to be associated with smartphone usage. Anxiety scores were predicted by both addiction and distraction scores. Anxiety scores were also significantly correlated with all variables including age. Rosen et al (2013) found that text messaging and phone calls caused the highest level of anxiety in particular with younger users. The findings from this study have shown similar patterns to Rosen et al and Rosen et al (2012) as well as Thomee (2012) and Andreassen et al (2016). These results aligned Australian findings with those from overseas’ samples confirming a great deal of uniformity in usage and consequence with other Western societies. Similarly, to stress, anxiety appeared to be related to the need to check in (Rosen et al, 2013), pressures of multitasking (Sanbonmatsu et al, 2013), addiction to social media (Andreassen et al, 2016) and distraction from other activities such as work (Madden & Jones, 2008; Silverman, 2012) and driving or walking as a pedestrian (Weksler & Weksler, 2012).

In addition to the quantitative aspect of this research, qualitative data was also gathered to investigate the views of the Australian general public about their smartphone use. The following research questions guided the data collection: a) how does the Australian general public perceive their smartphone use? Moreover, b) What factors influence the Australian general public’s smartphone use?

The research question, ‘how does the Australian general public perceive their smartphone use?’ was answered through reviewing the themes which emerged from the thematic analysis of interview data. Across participants, there were clear benefits and drawbacks of smartphone use that were highlighted. Benefits included: the convenient and easy to use nature of smartphones, the instant gratification that smartphones provide, and the way smartphones allow one to avoid or delay an uncomfortable social situation. Drawbacks included: the

reliance or dependence on smartphones, the distracting nature of smartphones and the conscious effort that is required refrain from using smartphone, the interference smartphones have with daily activities, and the way that smartphones result in always being contactable and the pressure to respond that comes with this.

Whilst most aspects of smartphone use were consistently viewed as either a benefit or a drawback, some aspects generated contrasting opinions. The way in which smartphones allow greater communication and connectedness was perceived as a benefit as people are more contact with one another. However, it was also viewed as a drawback as smartphones cause face-to-face communication to be compromised. The distractive nature of smartphones was generally viewed as a drawback, however, one participant did emphasise that the distractive nature can be viewed as a benefit when dealing symptoms of mental illness. Overall, participants recognised that their smartphone served a number of important functions in their life, however, they also indicated that their dependence on their smartphones and the distraction it produces can impact their lives negatively.

The second aspect of the qualitative research aim was also met, through exploring the factors influencing smartphone use. Several factors were identified through thematic analysis, which were convenience, time of day and activities. The first factor identified was convenience, which referred to the ease of use, simple and accessible nature of smartphones. The second factor that emerged was time of day, where participants indicated that their phone use was heavily influenced by time of day and the situational context, which determined the appropriate smartphone use etiquette and as a result their level of usage at that time. Participants also stated that they were inclined to stop face-to-face conversations to attend to their smartphone, in some contexts. The third factor that was identified as an influencing factor, was the activities participants were engaged in. This encompassed social, work,

commuting and leisure activities that all influenced and determined participant's smartphone usage.

The findings of this study suggest that participants' views of the factors that influence their smartphone use align with previous literature (Ickin, 2012; Kang, 2014). Participant's responses suggest that their views of the factors influencing recovery are guided by their own lifestyles and perspectives on smartphone use etiquette. This was illustrated where participants commented their smartphone use increased and decreased based on their work, environment and daily events. Furthermore, the convenience of the smartphone allowed participants to utilising their phone at any time of day and any place, and can be deemed the primary influencing factor of the other factors. Further research should be conducted in the relationship of distraction, addiction and social engagement rates. Overall, the influencing factors that emerged from this study are consistent with recent research findings. The interaction of addiction and distraction increased smartphone use and psychological distress.

## References

- Andreassen, C. S. (2015). Online Social Network Site Addiction: A Comprehensive Review. *Current Addiction Reports*, 2(2), 175-184. doi:10.1007/s40429-015-0056-9
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. doi:10.1191/1478088706qp063oa
- Brown, K.W. & Ryan, R.M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 84, 822-848.
- Carr, N. (2011). The Shallows: What the Internet is Doing to Our Brains. *Contemporary Sociology: A Journal of Reviews*, 40(6), 772-774. doi:10.1177/0094306111425021d
- Crowe, M., Inder, M., & Porter, R. (2015). Conducting qualitative research in mental health: Thematic and content analyses. *Australian & New Zealand Journal of Psychiatry*, 49(7), 616–623. doi:10.1177/0004867415582053
- Davila, J., Hershenberg, R., Feinstein, B. A., Gorman, K., Bhatia, V., & Starr, L. R. (2012). Frequency and quality of social networking among young adults: Associations with depressive symptoms, rumination, and co-rumination. *Psychology of Popular Media Culture*, 1(2), 72–86.
- Flaherty, G. T., & Choi, J. (2016). The ‘selfie’ phenomenon: reducing the risk of harm while using smartphones during international travel: Table 1. *Journal of Travel Medicine*, 23(2), tav026. doi:10.1093/jtm/tav026
- Graneheim, U., & Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105–112. doi:10.1016/j.nedt.2003.10.001
- Harrison, M., et al. (2015). *Social Science Journal*, 52, 129-146.

- Ickin, S., Wac, K., Fiedler, M., Janowski, L., Hong, J. H., & Dey, A. K. (2012). Factors influencing quality of experience of commonly used mobile applications. *IEEE Communications Magazine*, 50(4), 48-56.
- Jootun, D., McGhee, G., & Marland, G. R. (2009). Reflexivity: Promoting rigour in qualitative research. *Nursing Standard*, 23(23), 42–46.  
doi:10.7748/ns2009.02.23.23.42.c6800
- Kang, S. (2014). Factors influencing intention of mobile application use. *International Journal of Mobile Communications*, 12(4), 360-379.
- Leynes, P. A., Flynn, J., & Mok, B. A. (2018). Event-Related Potential Measures of Smartphone Distraction. *Cyberpsychology, Behavior, and Social Networking*, 21(4), 248-253. doi:10.1089/cyber.2017.0630
- McIlroy T. (2015). Planet of the phones. *The Economist*. Available:  
<http://www.economist.com/news/leaders/21645180-smartphone-ubiquitous-addictive-and-transformative-planet-phones>
- Madden, M., & Jones, S. (2008, September 24). Networked Workers. Retrieved from <http://www.pewinternet.org/2008/09/24/networked-workers/>
- Merriam-Webster's collegiate dictionary (10th ed.). (1999). Springfield, MA: Merriam-Webster Incorporated. <https://www.merriam-webster.com/words-at-play/still-life-compound-irregular-plurals>
- Richtel, M. (2010, August 24). Digital Devices Deprive Brain of Needed Downtime. Retrieved from <https://www.nytimes.com/2010/08/25/technology/25brain.html>
- Roberts, J. A., Yaya, L. H., & Manolis, C. (2014). The invisible addiction: cell-phone activities and addiction among male and female college students. *Journal of behavioral addictions*, 3(4), 254-65. doi: 10.1556/JBA.3.2014.015

- Rosen, L. D., Mark Carrier, L., & Cheever, N. A. (2013). Facebook and texting made me do it: Media-induced task-switching while studying. *Computers in Human Behavior*, 29(3), 948-958. doi:10.1016/j.chb.2012.12.001
- Rosen, L. D., Whaling, K., Rab, S., Carrier, L. M., Cheever, N. A. (2012). Is Facebook creating “iDisorders”? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Computers in Human Behavior*, 29, 1243-1254.
- Rozgonjuk, D., Saal, K., & Täht, K. (2018). Problematic Smartphone Use, Deep and Surface Approaches to Learning, and Social Media Use in Lectures. *International Journal of Environmental Research and Public Health*, 15(1), 92. doi:10.3390/ijerph15010092
- Sanbonmatsu, D. M., Strayer, D. L., Medeiros-Ward, N., & Watson, J. M. (2013). Who Multi-Tasks and Why? Multi-Tasking Ability, Perceived Multi-Tasking Ability, Impulsivity, and Sensation Seeking. *PLoS ONE*, 8(1), 1-8.  
doi:10.1371/journal.pone.0054402
- Science Daily. (2012, November 28). Cell phone addiction similar to compulsive buying and credit card misuse, experts say. Retrieved from  
<https://www.sciencedaily.com/releases/2012/11/121128122045.htm>
- Silverman, R.E. (2012, December 12). Workplace Distractions: Here's Why You Won't Finish This Article. Retrieved from <https://cacm.acm.org/opinion/articles/158435-workplace-distractions-heres-why-you-wont-finish-this-article/fulltext>
- The Nielsen Company. The total audience report: Q1 2016.  
<https://www.nielsen.com/content/dam/corporate/us/en/reports-downloads/2016-reports/total-audience-report-q1-2016.pdf>

- Thomée, S., Härenstam, A., & Hagberg, M. (2011). Mobile phone use and stress, sleep disturbances, and symptoms of depression among young adults - a prospective cohort study. *BMC Public Health*, *11*(1), 1-11. doi:10.1186/1471-2458-11-66
- Qualtrics. (2018). *Research core*. Retrieved from <https://www.qualtrics.com/au/research-core/>.
- Ward, A. F., Duke, K., Gneezy, A., & Bos, M. W. (2017). Brain Drain: The Mere Presence of One's Own Smartphone Reduces Available Cognitive Capacity. *Journal of the Association for Consumer Research*, *2*(2), 140-154.  
<https://doi.org/10.1086/691462>
- Weksler, M. E., & Weksler, B. B. (2012). The Epidemic of Distraction. *Gerontology*, *58*(5), 385-390. doi:10.1159/000338331
- Zhou, R., Yu, M., & Wang, X. (2016). Why Do Drivers Use Mobile Phones While Driving? The Contribution of Compensatory Beliefs. *PLOS ONE*, *11*(8), 1-18.  
doi:10.1371/journal.pone.0160288