Boundary Management

Are personality types and job satisfaction levels predictors to smartphone usage behaviours?

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Declarations

I, Peter J. Byrne, declare that this thesis is entirely my own work, and has not been previously submitted to this or any other third level institution.

I further declare that my research was completed in full compliance with the ethical research requirements of the Department of Technology and Psychology (DTP), at IADT.

I also agree that the DTP may lend or publish a copy of this report on request.

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As I look back over the last two years of academic study, one thing springs to mind. While yes, I am relieved that it's almost over, more importantly, I am fortunate to have met such a number of likeminded individuals, who have persevered a return to college to further their studies. I have also had the great pleasure of working with most, on various college assignments and projects.

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Peter

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Abstract

Smartphones have become integrated into many parts of our daily lives. These devices have improved areas of our work life through enhanced collaboration, removing the need for a physical office locations, and improving productivity levels. Smartphones have also improved our home lives, providing users the ability to record and share important family moments instantly, providing access to volumes of online data, improving health awareness through health monitoring apps, and face-to-face video chat. However, the once clearly defined boundaries between both, the work and home domains, have become blurred. The purpose of this paper is to investigate whether personality types, job satisfaction levels, and demographic variables, are predictors to an individual's smartphone usage behaviour, focusing primarily on boundary management levels. The findings suggest that certain combinations of job satisfaction levels, relationship status, dependents, and personality types, could indicate an individual's smartphone usage behaviour. These findings emphasise that boundary management levels, for both the individual and the company they work for, may require scrutiny, in order to improve an individual's work-life balance.

Keywords: Smartphone Work-life balance Boundary management Blurred boundaries Job satisfaction

1. Introduction

Since the invention of smartphones and advancements in mobile technologies, individuals can access the internet from almost anywhere in the world. Smartphone users have the ability to access email, shop, chat, text, and much more, at any time of the day. Over the past decade numerous studies have been conducted regarding smartphone usage, examining areas such as work-life balance (Derks, Bakker, Peters, & Wingerden, 2016; Son & Chen, 2018), and more granular areas such as work-life conflict (Yun, Kettinger, & Lee, 2014) and work-life enhancement (Grawitch & Barber, 2010).

As mobile technologies advance and smartphone capabilities increase, so too does our time spent using them. Existing research, regarding the impact these devices have on our everyday lives, suggest conflicting results. Some argue that our "personal time", the time we have in the day to allow our brains to process everything that has happened, is diminishing at an alarming rate, resulting in less time to rest, relax, and rejuvenate (Derks & Bakker, 2012; Taris, Schaufeli, & Verhoeven, 2005). Others argue that these devices have freed up time by reducing the dependency on physical locations to complete tasks, and provide a more convenient way to communicate and collaborate (Väätäjä, 2012; Williams & LaBrie, 2015; Colbert, Yee, & George, 2016). A common thread found in existing research is that these devices, over the past decade, have created a blurring of boundaries between the work and home domains.

Boundaries come in a variety of types including, physical, psychological, spiritual, and emotional. Personal boundaries are the limits and rules individuals set themselves, within the relationships they have with others (O'Brien, 2014). For the majority of people, caring and positive relationships are essential to their well-being, allowing individuals to embrace life and generate a sense of purpose (LaBier, 2014). A recent study suggests that smartphones, and the interruptions they bring, impede existing relationships as individuals give preference to communicating on smartphones, over face-to-face communications (Duxbury, Higgins, Smart, & Stevenson, 2014; Roberts & David, 2016).

Smartphones have become an integral part of our everyday lives, providing their users access to vast amounts of information, the ability to facilitate travel, access volumes of entertainment, access to work, record family events, and share these events online. Arnold (2003) suggests that when technology is used in a certain way, outside the context it was originally designed for, it can have unexpected consequences, contrary to the original purpose of the device (Arnold, 2003). One of the more notable consequences reported was behavioural change. Phubbing is the term used to describe the act of ignoring those in physical proximity, while communicating to others on their smartphones (Chotpitayasunondh & Douglas, 2018).

Research in 2012 suggested that smartphone users could spend up to 2.7 hours per day on their device (Oulasvirta, Rattenbury, Ma, & Raita, 2012). A more recent study suggests that people, on average, are online up to 24 hours a week (Hymas, 2018). The increase in active screen-time has almost doubled in 6 years. This increase in online activities has been associated with the increase in smartphone users (Twenge, Joiner, Rogers, & Martin, 2018). Statistics show that 35% of the Irish population owned a smartphone in 2011 (Colwell, 2012), with this number rising to 90% by 2017 (Rooney, 2018). As of 2018, 97% of the Irish population own or have access to a smartphone (Goodbody, 2018).

Google process approximately 40,000 searches every second (3.5 billion searches per day) (Marr, 2018), with almost half the searches being conducted on mobile devices. This increase in time spent on smartphones has been suggested to have an impact on, the quality and quantity of our sleep, the time spent with family and friends, and has also been reported to have a negative impact on the quality of our work (Hawi & Samaha, 2017; Chowdhury, Basu, & Laskar, 2018).

With the number of smartphone users increasing yearly, this research asks the question - How do personality types and job satisfaction levels influence an individual's smartphone usage behaviour? This study also investigated the area of "boundary management", with regard to smartphone usage, and how individuals balance the time spent in the work and home domain.

2. Literature Review

Over the past decade, numerous studies have been conducted regarding smartphones and the impact these devices have on our personal and professional lives, namely "Work-Life Balance". The majority of these studies have focused on "bringing work home", by detailing the impact smartphones have on our home lives (Brown & Palvia, 2015), the additional hours worked outside the norm (MacCormick, Dery, & Kolb, 2012), the constant checking and responding to emails (Cecchinato, Cox, & Bird, 2014), and more recently, the change in human behaviours, including, phubbing (Roberts & David, 2016), loss of sleep, increased anxiety, and depression (Kim, 2018).

Smartphones

Smartphones have become integrated into almost every part of our daily lives (Brown & Palvia, 2015). With the ability to provide their users access to online resources while on the go, smartphones have removed the dependency on physical office locations to conduct business. Business is conducted on the go and at any time of the day or night. Smartphones have enabled employees to collaborate more effectively (Yeh, 2010), be more productive (Carayannis & Clark, 2011), and have enabled businesses to be more responsive to customer needs, using smartphone notifications and social media (Agnihotri, Dingus, Hu, & Krushd, 2016).

Smartphones not only provide functionality that is beneficial to employers, they enable their users to have a more connected home life. Cabalquinto (2018) suggests that existing smartphone technology had enabled young adults to provide online care and support to their distant parents. Using smartphone apps such as Facetime and Viber, the study investigated a number of migrant adult children who regularly engaged in cultural family obligations despite the distance separating them from their families (Cabalquinto, 2018). Other noted smartphone functionality, that benefited the family domain, was the ability to record special family events and share them almost instantly to anyone in the world (Holloway & Green, 2017), removing the need for any additional equipment, skills, and time. Smartphone popularity continues to increase with the number of global smartphone users

expected to reach 2.87 billion by 2020 (Statista, 2019). With the capability to do so much on one device, a need for structured balance between both, the work and family domain, exists.

Work-Life Balance

Work-Life Balance and the impact on the family domain, has been the topic of a number of studies over the past two decades (Tausig & Fenwick, 2001; Fleetwood, 2007; Wayne, Lemmon, Hoobler, Cheung, & Wilson, 2017). Previous studies have investigated the blurring of boundaries between work and home life (Mellner, 2016; Derks et al., 2016). The majority of studies have investigated when work life spills over into the home life (Daniel & Sonnentag, 2016), when individuals constantly check email and take calls outside of normal working hours (Kossek & Lautsch, 2012; Haun, Nübold, & Bauer, 2018). Kossek and Lautsch (2012) also suggest that managing the boundaries between work and home may be shaped by how individuals prioritise their role in the work and family domain.

This study expands on existing research by including an individual's job satisfaction levels as an additional variable, and a possible indicator of smartphone usage behaviour. Personality types and the impact on smartphone ownership and behaviours, have also factored in previous research (Hussain, Griffiths, & Sheffield, 2017; Lane & Manner, 2011)

Other studies have investigated the impact on productivity, focusing on personal smartphone usage in the workplace (Duke & Montag, 2017; Jamaluddin, Ahmada, Alias, & Simuna, 2015). Individuals switch from the work domain to the family domain, and back to the work domain multiple times a day, transitioning across work and family boundaries. The transitioning from one domain to another, or the regular interruptions from smartphone notifications, reportedly increases cognitive load on the individual in question (Mark, Czerwinski, & Iqbal, 2018).

Other research suggests that disabling or blocking smartphone notifications may enable employees to feel more productive (Collins, Cox, & Wootton, 2015). The majority of research regarding work-life balance suggests that individuals wanting to be both, productive in the work domain, and active participants in the family

domain, established boundaries that allow smoother transitioning from one domain to the other (Brown & Palvia, 2015; Derks, Bakker, Peters, & Wingerden, 2016; Kossek & Lautsch, 2012).

Boundaries

The concept of creating and maintaining personal boundaries is well documented in academic and professional literature. The "Boundary theory", as suggested by Ashforth et al. (2000), is a framework that identifies how individuals transition into the different roles that exist in their lives. Roles which could include, parent, child, partner, manager, co-worker, etc.

"Border theory", as described by Clark (2000), has a similar structure and identified that the borders between work and family, are emotional as well as physical. Emotional border breach, spill over from one domain into another, occurs when an employee has a "bad day in work" and brings that negative emotion home affecting the family domain (Clark, 2000).

Both Boundary and Border theories defined work and family as separate domains. Each theory suggests clear distinctions between each domain. Both theories are dated from 2000, at a time when smartphones had little or no impact on either work or home life. Over the past two decades, these once clearly defined boundaries have diminished, and the once rigid and clearly identifiable border between the work and home domains, have become blurred. The existence of physical boundaries, differentiating the work and home domains (Carlson, Ferguson, & Kacmar, 2016), have been in steady decline since the introduction of the smartphone (Spieler, Scheibe, & Roßnagel, 2018). Smartphones, both personal and work provided, enabled users to frequently transition from one domain to another (Mellner, 2016).

The impact of frequent transitioning to different domains has been suggested to cause a reduction in work productivity (Brooks, 2015; Blanchard & Henle, 2008), an increase in cognitive load (Derks & Bakker, 2012), and an increase in work-home conflict (Brown & Palvia, 2015; Haun, Nübold, & Bauer, 2018). More recently, new behaviours have reportedly emerged with regard to smartphone usage.

Behaviours

Over the past five years, smartphone usage has been linked to a number of so called "side-effects" and behavioural changes (Elhaia, Levine, Dvorak, & Hall, 2016; Mak, Nickerson, & Sim, 2018). One of the more notable behaviours reported is "phubbing" (phone-snubbing), a term used to describe the extent to which a person uses or is distracted by their smartphone while in the company of others (Roberts & David, 2016). Phubbing not only impacts the work domain, as managers and supervisors are distracted while in communication with their subordinates (Roberts & David, 2016), it has also reportedly impacted the home domain and individuals' social lives (Kuss, Harkin, Kanjo, & Billieux, 2018).

Another behavioural side-effect is "technostress", stress that is created from the use of information and computer technology (ICT) (Tarafdar, Tu, Ragu-Nathan, & Ragu-Nathan, 2007). More recent studies suggest that levels of technostress have increased in the past decade (Lee, Chang, Lin, & Cheng, 2014), coinciding with the increase in smartphone users and social networking sites (SNS) (Mak, Nickerson, & Sim, 2018; Park, 2019).

'Habit-checking', is the term used to describe an individual's automatic behavioural response which has been triggered by certain cues (Oulasvirta et al., 2012). Habits are formed when an individual continually repeats actions in certain circumstances (Oulasvirta et al., 2012). Habits are actions that do not require conscious thinking (LaRose, Lin, & Eastin, 2003). Andrews, Ellis, Shaw and Piwek (2015), suggests that interactions with smartphones that lasted less than thirty seconds had been classified as "checking behaviours". Their research also suggested that "goal and reward-based" checking usually occurred in less than 15 seconds, and that individuals had little awareness as to the frequency they would check their smartphone (Andrews, Ellis, Shaw, & Piwek, 2015). This frequent unawareness of smartphone checking has also been linked to blurred boundaries and phubbing (Chotpitayasunondh & Douglas, 2018).

A number of studies investigating the effects of smartphone usage have suggested that physical side-effects should also be considered. These effects include loss of

sleep (Touitou, Touitou, & Reinberg, 2016; Shechter, Kim, St-Onge, & Westwood, 2018), increased anxiety (Kadir, Mehmet, & Abdullah, 2015), and increased depression (Elhai, Levine, Dvorak, & Hall, 2017).

Some of the suggested benefits to smartphone behavioural changes have focused on personal fitness apps and wearable devices, which have been linked to an increase in health awareness and healthier lifestyles (Lukoff, Yu, Kientz, & Hiniker, 2018). While seen as both a benefit and hindrance by many, the ability to check email while commuting, has been linked to a reduction in stress levels for employees (Dery, Kolb, & MacCormick, 2014). Other benefits reported by employee smartphone usage include, efficient communication (Yeh, 2010) and increased employee engagement (MacCormick, Dery, & Kolb, 2012). Many of today's activities can be achieved on or with a smartphone device, providing both benefits and liabilities, there exists a need for usage regulation.

Boundary Management and Self-Regulation

Managing the boundaries between the work and home domain cannot be the responsibility of the individual nor the company they work for (Day & Hartling, 2017). To effectively manage boundaries, each situation needs to be addressed individually. As suggested by Kossek and Lautsch (2012), to maintain both a positive work and family balance, boundary management styles "may be a function of individual preferences in relation to the social contexts in which these styles are enacted" (Kossek & Lautsch, 2012, p. 153). Creating flexible boundaries, as suggested by Piszczek (2016), can enable employees to control how they transition the work and home domain boundaries. Smartphones could also be considered as a job resource, providing employees control as to when and where certain work tasks can be completed (Piszczek, 2016).

Self-regulation, as described by Bandura (1991), is when an individual controls their behaviour to achieve a desired outcome. To be successful in self-regulation, an individual depends on consistent self-monitoring (Bandura, 1991). With regard to smartphone usage self-regulation, individuals need to be aware of the frequency of their smartphone interactions through self-monitoring, achieved by enabling or

installing usage monitoring and tracking apps, including Apple's Screen Time, QualityTime, RealizD, etc. on their devices. These apps provide the user with a clear indication as to the frequency and time spent on their smartphones. Access to usage data allows an individual to adjust their usage behaviours, depending on work and home requirements.

Current Research

From the previous research investigated, a gap was identified regarding the correlations between personality types, job satisfaction levels, and smartphone usage behaviours. Previous studies have focused on either personality types or job satisfaction levels, but not a combination of both, providing this study a basis to build on and ask the research question: How do personality types and job satisfaction levels affect smartphone usage behaviours?

Based on the research already conducted, this study developed four hypotheses. Previous research suggests individuals feel a responsibility to answer calls after hours (Derks & Bakker, 2012), blurring the work-home boundary (Mellner, 2016), when they provided with a work smartphone. However, research suggests that married individuals feel a greater responsibility to the family domain (Paulin, Lachance-Grzela, & McGee, 2017). Therefore, the following two hypotheses are proposed:

> *Hypothesis 1: Married people maintain rigid boundaries between their work and home domains.*
>
> *Hypothesis 2: Single people, with high job satisfaction levels, will exhibit fluid boundary management between their work and home domains.*

A recent study regarding personality types and smartphone behaviours suggests that while engaging in online activities in the work or home domain, an individual's personality type influences their responses to smartphone notifications (Tan, Hsiao, Tseng, & Chan, 2018). Building on this research and previously published papers pertaining to personality types and smartphone usage behaviours, an additional two hypotheses are proposed:

Hypothesis 3: Introverts are more likely to respond to external notifications in the work place environment.

Hypothesis 4: People with a high job satisfaction level, and high level of conscientiousness are more like to respond to work notifications out of hours.

3. Method

Design

Smartphone usage behaviours have been the topic of many studies over the past decade. These studies considered, smartphones as devices that provide constant contact and collaboration, their impact on culture, and the differences created to social norms (Jensen, 2013; Humphreys, 2005). Studies suggest that smartphones have been a key factor in the process of developing identities within young individuals, also suggesting that further research in altered behaviours in young adults is required (Wang, Wangb, Gaskin, & Wanga, 2015). This study builds on previous studies which focused on smartphone usage behaviours. This study combined job satisfaction levels with personality types, and was conducted as a correlational design. The study was conducted using a quantitative approach, and examined how personality types and job satisfaction levels may influence or predict an individual's smartphone usage behaviour, investigating if a correlation exists between personality types, job satisfaction levels, relationship status and dependents (Independent variables) and boundary management levels (Dependent variables). The tools used for demographic analysis, independent t-tests, calculating Cronbach alpha, Pearson's correlation analysis, and ANOVA data analysis were IBM SPSS Statistics (11-2018) and Microsoft Excel 2013.

Participants

A total of 104 smartphone owners and users successfully completed the online survey. 7 responses were removed from the results, as they fell outside of the required parameters of the study. This left a final sample size of 97 smartphone owners and users. The participants ranged in age from 22 to 60 years (M = 41.2938, SD = 9.4813), with 54 males (55.7 %) and 43 females (44.3 %). The number of employed participants was 97 (n = 97), 78 were in full-time employment (80.4%), 10 were in part-time employed (10.3%), and 9 were self-employed (9.3%).

Other variables that contributed to this study include; 48 (49.5%) of the participants were married and, 50 (51.5%) participants have dependent children, both variables are suggested to contribute to specific smartphone usage behaviours.

Materials

An online survey was created using Google Forms. The survey consisted of 39 questions, split into the sections as detailed below;

Personality types

To ensure that a measure of the Big 5 personality types was recorded for each participant, the Ten Item Personality Measure (TIPI) was used in this study. Gosling, Rentfrow, and Swann (2003), created the TIPI, as a means for researchers, with limited time, to gather and measure information on the Big 5 personalities, with a Likert scale response of 1 to 7 (1 = Strongly Disagree, 7 = Strongly Agree). The TIPI, while self-reported, provided suitable levels of convergence with the existing means of measuring the Big-Five (Gosling, Rentfrow, & Swann, 2003).

Job Satisfaction level

Macdonald and MacIntyre (1997) describe "job satisfaction" as the term used to associate an individual with their job situation. Job satisfaction also focuses on past and present situations (Macdonald & MacIntyre, 1997). The job satisfaction section of the questionnaire, was found to be very reliable (10 items; $\alpha = .835$). For this study, a refined version of the Job Satisfaction scale was used, containing ten questions, with a Likert scale response of 1 to 5 (1 = Strongly Disagree, 5 = Strongly Agree).

Smartphone usage behaviours

To provide insight into smartphone usage behaviours, participants were asked a number of open and closed questions regarding their smartphone checking habits. The closed questions related to checking their phone first thing in the morning and before they went to bed. A sub-section of questions related to phone usage behaviours in the work and home domains.

Work, Home, and Social Boundary Levels

A number of scenarios were also included in the survey, to gain an understanding of how individuals react to smartphone interruptions, in work, at home, and while socialising. In each of the 3 proposed boundary management scenarios, a scoring system was used to code the response of the each participant to each scenario (1 =

Respond, 2 = Check, 3 = Wait, 4 = Ignore). Each score value increased as the level of boundary management rigidity increased.

Demographics

A number of questions regarding participant demographics were asked. Questions regarding relationship status and dependants were included in the survey as participants in a relationship could be more responsive to interruptions from home while in work. This could also be said about participants with dependants.

Ethics

There was no conflict of interest reported during this study. No participant reported distress during or on completion of the survey. All participants were also ensured that their data would be anonymised. Ethical Approval Form A was required and approved for this study (which can be found in Appendix A - Ethics form A). Each participant was provided with a Participant Information Sheet (as detailed in Appendix B - Participant Information Sheet), a Participant Consent Form (as detailed in Appendix C - Participant Consent Form), and a Participant Study Debrief (as detailed in Appendix D - Participant Debrief forms). Data collected was secured on an encrypted USB device and only the researcher and their supervisor had access to the data. No reward was offered for participating in the survey.

Procedure

An online survey was created using Google Forms and each participant was required to complete the questionnaire (as detailed in Appendix E - Online questionnaire). Participants were required to be 18 or older and use a smartphone, either personal or supplied by their employer. Participants were recruited through social networking sites including, Facebook, LinkedIn, Twitter, and through direct email, with the written consent from my employer. Participants were also encouraged to share the survey link with their family, friends, and colleagues, in order to provide a diverse collection of participants with a variety in age, location, and types of employment. A pilot study was conducted with a sample size of 4 respondents to test the responses and the order of questions of the online questionnaire. From the results of the pilot, a number of changes were applied to the layout of the questionnaire, the job

satisfaction section and the scenario questions were repositioned, as it was decided that the original order of questions could provide bias to subsequent questions.

4. Results

This study was conducted using a quantitative approach, and examined how personality types and job satisfaction levels may influence or predict an individual's smartphone usage behaviour.

Table 1 presents a profile of respondents, separated by gender and grouped by age, relationship status, dependents, and smartphone ownership.

Table 1
Profile of Respondents

Variable		Male	Female	(Mean Age)	%
Age					
	22-25	3	1	23.5	4.10%
	26-30	11	5	28	16.50%
	31-40	11	9	35.5	20.60%
	41-50	18	23	45.5	42.30%
	51-60	11	5	55.5	16.50%
Relationship status					
	Single	21	23		45.40%
	Married	31	17		49.40%
	Civil Partnership	0	2		2.10%
	Divorced	2	0		2.10%
	Widowed	0	1		1.00%
Dependents					
	Yes	28	22		51.50%
	No	26	21		48.50%
Smartphone ownership					
	Personal	34	27		62.90%
	Work	11	6		17.50%
	Both	9	10		19.60%

Hypotheses Testing

Hypothesis 1 states that married individuals maintain a more rigid boundary management between work and home domains. To investigate this, a one-way ANOVA was conducted on the work boundary dependent variable by relationship status. Results from the one-way ANOVA suggest that groups containing two or less participants would skew results (as shown in Appendix F – Means plot of work boundary by relationship status). Post hoc tests could not be performed as at least one group had fewer than two cases. Groups that contains two or less cases were

filtered out; widowed (*n* = 1), civil partnership (*n* = 2), and divorced (*n* = 2). The remaining groups were, married and single (*n* = 92).

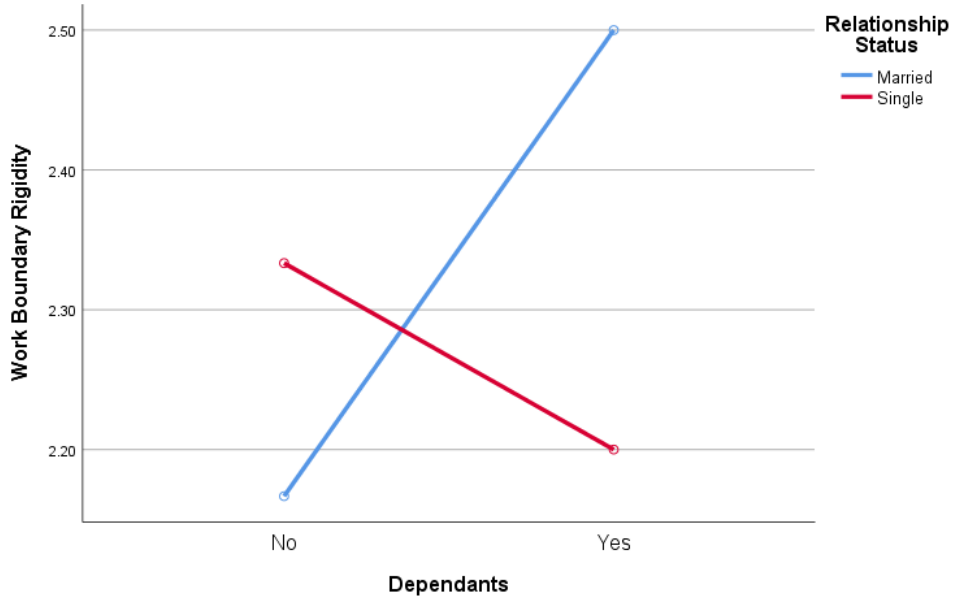

Figure 1. Work boundary rigidity and dependents by relationship status

An independent t-test was conducted to compare relationship status and the mean scores of work, home, and social boundaries. Boundary scores ranged from 1 to 4, 1 indicating a more permeable and 4 indicating a more rigid (as shown in Table 2).

Table 2
Independent T-Test on Work, Home, and Social Boundary Means for Single and Married Participants

	Relationship Status	*n*	*Mean*	*Std.*	*SEM*
Work Boundary	Married	48	2.46	0.97	0.14
	Single	44	2.32	0.80	0.12
Home Boundary	Married	48	2.27	1.38	0.20
	Single	44	2.07	1.32	0.20
Social Boundary	Married	48	2.67	1.00	0.14
	Single	44	2.50	0.76	0.11

There was no significant difference in scores for the work boundary, for married (*M* = 2.46, *SD* = 0.97) and single (*M* = 2.32, *SD* = 0.80) conditions; *t*(90) = 0.754, *p* = .453. Similarly, for the social boundary, for married (*M* = 2.67, *SD* = 1.00), and single (*M* = 2.50, *SD* = 0.76), conditions *t*(90) = 0.895, *p* = .373, were not significant.

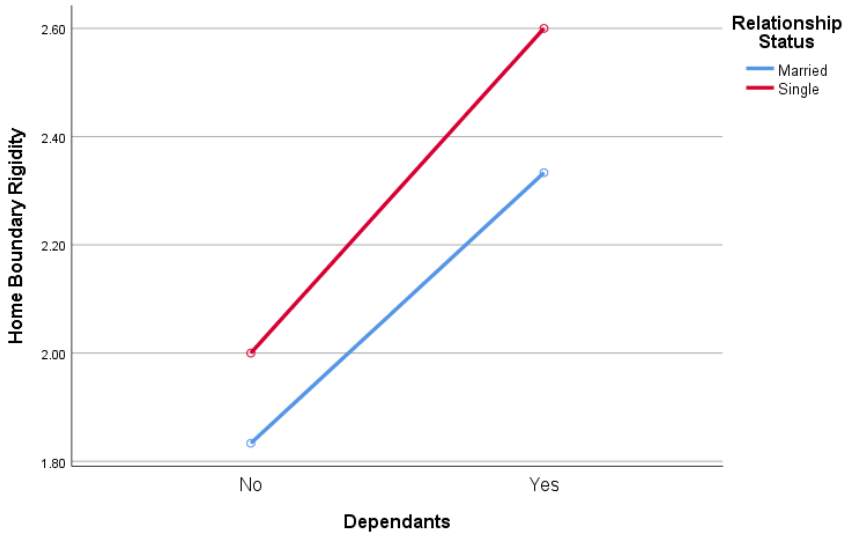

Figure 2. Home boundary rigidity and relationship status, with and without dependents

The largest reported difference in scores was the home boundary, for married (*M* = 2.27, *SD* = 1.38) and single (*M* = 2.07, *SD* = 1.32), conditions; *t*(90) = 0.719, *p* = 0.474. The results across all 3 boundary types suggest that married individuals maintain a more rigid boundary management, than single individuals, which supports hypothesis 1.

Table 3
Inter-Item Correlation Matrix

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Q1	1.000									
Q2	0.597	1.000								
Q3	0.697	0.577	1.000							
Q4	0.295	0.185	0.475	1.000						
Q5	0.209	0.216	0.375	0.185	1.000					
Q6	0.320	0.328	0.309	0.052	0.228	1.000				
Q7	0.412	0.268	0.335	0.228	0.026	0.198	1.000			
Q8	0.249	0.257	0.389	0.133	0.301	0.365	0.358	1.000		
Q9	0.344	0.458	0.477	0.329	0.321	0.306	0.278	0.302	1.000	
Q10	0.489	0.470	0.639	0.382	0.351	0.405	0.400	0.641	0.459	1.000

Hypothesis 2 states, single individuals with a reported high job satisfaction level, will exhibit a fluid or permeable boundary management style, between their work and home domains. Table 3 presents the Inter-Item correlation matrix, suggesting a high level of internal consistency. To investigate hypothesis 2, a frequency distribution test was carried out on job satisfaction levels based on relationship status (as show

in Appendix G – Box Plot of frequency of job satisfaction levels per relationship status). The participants in the relationship status groups; widowed, civil partnership, and divorced, reported a job satisfaction level of 3 or less, which did not match the criteria of high or very high job satisfaction levels, and were excluded from further testing.

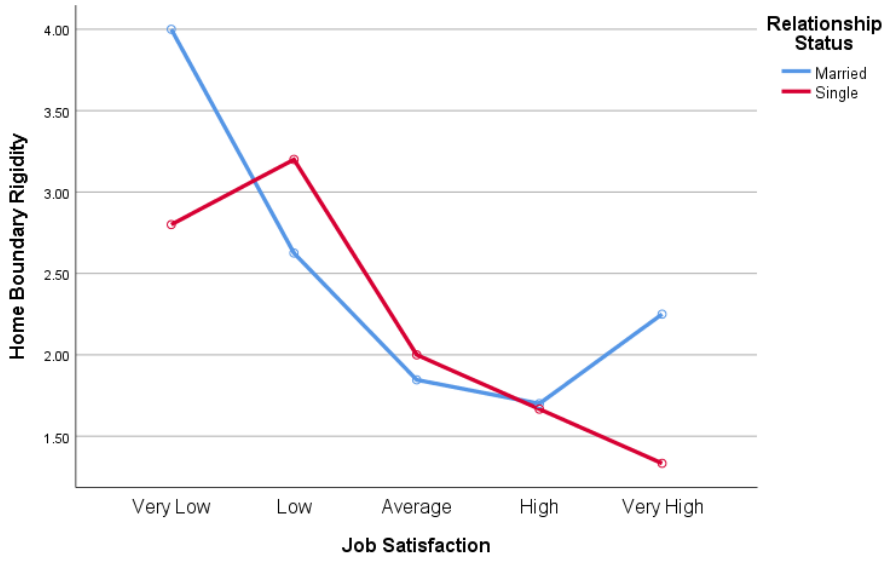

Figure 3. Home boundary rigidity and job satisfaction levels by relationship status

A one-way ANOVA (as shown in Table 4) was conducted on relationship status, to compare boundary management levels reported for each of the work, home, and social domains.

Table 4
A One-way ANOVA on Relationship Status, comparing Work, Home, and Social boundaries by Relationship Status

		n	*M*	*SD*	*Std. Error*
Work Boundary	Married	22	2.32	0.95	0.20
	Single	12	2.42	0.67	0.19
	Total	34	2.35	0.85	0.15
Home Boundary	Married	22	2.00	1.27	0.27
	Single	12	1.42	1.00	0.29
	Total	34	1.79	1.20	0.21
Social Boundary	Married	22	2.73	0.98	0.21
	Single	12	2.17	0.39	0.11
	Total	34	2.53	0.86	0.15

There was no significant effect of relationship status on work boundary management levels at the $p < .05$ level for the two conditions [$F(1, 32) = 0.10$, $p = 0.752$]. Similarly, there was not a significant effect of relationship status on the home boundary management levels at the $p < .05$ level for the two conditions [$F(1, 32) = 1.88$, $p = 0.180$]. The closest boundary to having a significant effect of relationship status was reported on social boundary management levels at the $p < .05$ level for the two conditions [$F(1, 32) = 3.54$, $p = 0.069$]. These results suggest that an individual's relationship status, is more likely to have an effect on the social boundary management levels of an individual, over the home or work boundary management levels. These results suggest that hypothesis 2 was not supported.

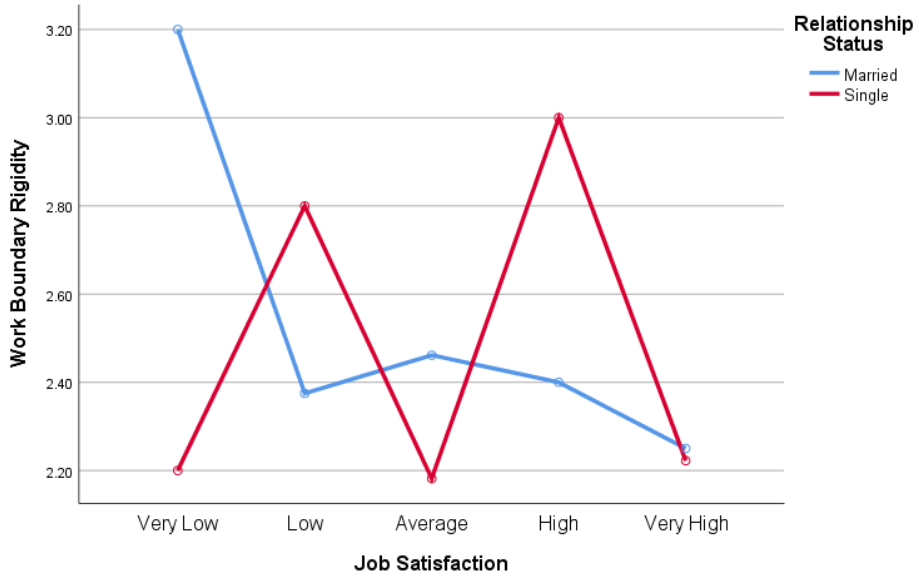

Figure 4. Work boundary rigidity levels and job satisfaction levels by relationship status

Hypothesis 3 states that, Introverts are more likely to respond to external notifications while in the work environment. Personality types were measured using the Ten Item Personality Instrument (TIPI) (Gosling, Rentfrow, & Swann, 2003). Table 5 presents the totals, means, standard deviations, minimum, maximum, and skewness of respondents' personality traits.

Table 5
Means and Standard Deviations, Minimum, Maximum, and Skewness of Personality Traits

Personality Traits	*n*	*Mean*	*SD*	*Min.*	*Max.*	*Skewness*
Extraversion	97	4.34	1.38	1.5	7.0	0.09
Agreeableness	97	2.86	1.11	1.0	6.5	0.64
Conscientiousness	97	5.56	1.09	2.5	7.0	-0.78
Emotional Stability	97	3.20	1.32	1.0	6.5	0.54
Openness to Experience	97	4.77	1.16	1.5	7.0	-0.22

A Pearson product-moment correlation coefficient was computed to assess the relationship between each of the Big 5 personality types and the work boundary management levels.

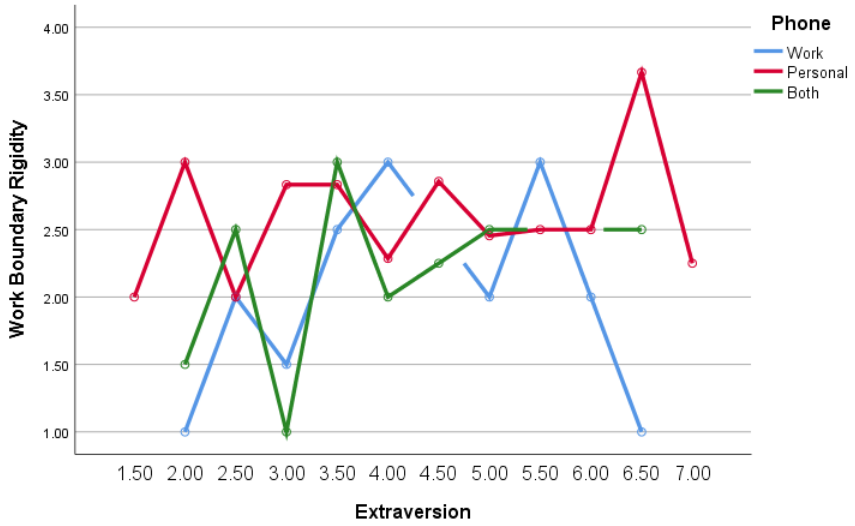

Figure 5. Work boundary and extraverts, by smartphone supplier type

There were no evidence of correlations between any of Big 5 personality types and work boundary management levels (as shown in Table 6) suggesting the hypothesis 3 was not supported.

Table 6
Pearson Product-Moment Correlation Coefficient for each of the Big 5 Personalities and Work Boundary Management levels

Personality type	*n*	*p*	*r*
Extraversion	97	0.30	0.106
Conscientiousness	97	0.04	-0.209
Emotional Stability	97	0.31	0.104
Openness to Experience	97	0.06	0.195
Agreeableness	97	0.62	0.051

Pearson *r* was also computed and graphed (scatter-plot) for work boundary management levels and extraversion alone, as stated in hypothesis 3 (as shown in Table 6).

Hypothesis 4 states that, individuals with a high level of job satisfaction and a high level of conscientiousness, are more likely to respond to work notifications outside of regular business hours. To investigate this, a one-way between subjects ANOVA was conducted to compare the effect of conscientiousness and job satisfaction levels on home boundary management levels (as shown in Table 7). Home boundary managements levels ranged from 1 to 4; 1 = Answer, 2 = Check, 3 = Defer, and 4 = Ignore.

Table 7
Results from one-way ANOVA, comparing effect of Conscientiousness and Job Satisfaction levels on Home Boundary Management levels

		n	*Mean*	*Std. Deviation*	*Std. Error*	*Minimum*	*Maximum*
Conscientiousness	Answer	52	5.68	0.97	0.13	3.50	7.00
	Check	2	6.75	0.35	0.25	6.50	7.00
	Defer	15	5.77	0.88	0.23	4.50	7.00
	Ignore	28	5.13	1.29	0.24	2.50	7.00
	Total	97	5.56	1.09	0.11	2.50	7.00
Job Satisfaction	Answer	52	3.56	1.09	0.15	1.00	5.00
	Check	2	3.00	0.00	0.00	3.00	3.00
	Defer	15	3.33	1.11	0.29	2.00	5.00
	Ignore	28	2.39	1.40	0.26	1.00	5.00
	Total	97	3.18	1.27	0.13	1.00	5.00

There was a significant effect of conscientiousness on home boundary management levels at the $p < .05$ level for the four conditions [$F(3, 93) = 2.86$, $p = 0.042$], suggesting that hypothesis was supported. Post hoc comparisons using the Tukey HSD test indicated that the mean score for the “check” condition ($M = 6.75$, $SD = 0.35$) was significantly different than the “ignore” condition ($M = 5.13$, $SD = 1.29$). However, the “answer” condition ($M = 5.68$, $SD = 0.97$) did not significantly differ from the “defer” condition ($M = 5.77$, $SD = 0.88$).

Figure 6. Home boundary, and job satisfaction levels for conscientiousness individuals, by phone supplier type

It was also noted that there was also a significant effect of job satisfaction levels on home boundary management levels at the $p < .05$ level for the four conditions [$F(3, 93) = 5.97$, $p = 0.01$]. Post hoc comparisons test indicated that the mean score for the "answer" condition ($M = 3.56$, $SD = 1.09$) was significantly different than the "ignore" condition ($M = 2.23$, $SD = 1.40$). However, the "defer" condition ($M = 3.33$, $SD = 1.11$) did not significantly differ from the "check" condition ($M = 3.00$, $SD = 0$), nor the answer and ignore. These results suggest that both, conscientiousness and job satisfaction levels do have an effect on home boundary management levels.

5. Discussion

This purpose of this study was to investigate how personality types and job satisfaction levels may predict an individual's smartphone usage behaviours, focusing on the level of boundary management applied. As hypothesised, certain combinations of personality type, job satisfaction levels, and demographic variables including relationship status and dependents, provide insight into an individual's smartphone usage behaviour. These behaviours augment the already blurred boundaries that exist between the work and home domains. While personality types alone suggest a weak predictor to the different behaviours examined, which was also noted by Lane and Manner (2011), other variables including relationship status, combined with dependents, job satisfaction levels, and domain boundary type, suggest that individuals' behaviours were affected, depending on the combination of multiple variables.

The results suggest that married individuals maintain a more rigid work boundary, than single individuals, which supported the first hypothesis. As shown in Table 2, for each of the three different boundary domains, work, home, and social, the mean level of boundary rigidity for married individuals was higher than that of single individuals, supporting the hypothesis, which is consistent with Carlson et al. (2016), who suggested that there is a preference for family segmentation from the work environment, maintaining a rigid work and home boundary. On further analysis, when dependents were added as an additional criteria, there were unexpected results. Single individuals without dependents, reportedly manage a more rigid work boundary, than both, single individuals with dependents and married individuals without dependents (as shown in Figure 1). An expected result would be that both single and married individuals would increase their work boundary management level, when dependents are included as a factor. Future studies could explore these unexpected results and the additional variables. As shown in Figure 2, the level of rigidity regarding home boundary management increases for both married and single individuals when dependents are factored as an additional variable. These results suggest, when dependents are added as a variable, the level of home and work boundary rigidity increases for both married and single individuals.

The second hypothesis states, single individuals with high job satisfaction levels, would exhibit a flexible boundary management style for both home and work domains. The results of the two-way ANOVA applied to home and work boundaries, on relationship status and job satisfaction levels suggest that as job satisfaction levels increase, their home boundaries become more flexible (as shown in Figure 3), which is consistent with Daniel and Sonnentag (2016), suggesting job satisfaction levels were significant predictors for boundary management levels . Examining the work boundary levels of rigidity for single people with high job satisfaction levels, indicates that the results do not support the second hypothesis with regards to work boundaries (as shown in Figure 4).

Hypothesis 3 stated individuals with an introvert personality, are more likely to respond to external notifications while in a work environment. Using the lower end of the extraversion scores, to identify introverted individuals, the results do not support the third hypothesis (as shown in Figure 5). Results suggest no distinguishable correlation between introverts and work boundary rigidity. These results are consistent with Tan et al. (2018) and Lee et al. (2014), suggesting that personality types are a poor indicator to smartphone usage behaviours.

Hypothesis 4 stated individuals with high job satisfaction and reported high levels of conscientiousness will respond to work notifications out of normal working hours. Filtering the dataset on individuals that reported a job satisfaction level >= 3 and a personality conscientiousness level >= 4.5, resulted in a subset of 64 (n = 64). Applying a two-way ANOVA, with split plots on smartphone ownership type (as shown in Figure 6). The results suggest that hypothesis 4 was partially supported, only in the case where individuals have a work supplied smartphone. There is no support for this hypothesis for individuals with a personal device, or for those individuals that maintain both, a personal and work supplied smartphone.

Theory Development

Both the Boundary theory (Ashforth, Kreiner, & Fugate, 2000) and Border theory (Clark, 2000) focused on the environment at that time. Due to mobile technology advancements over the past 2 decades, and proliferation of mobile devices, the once clearly defined work and home domains are in a constant state of dissolution. Many of the previous papers regarding behaviours and smartphone technologies have focused on the effects these devices have on individuals' behaviours and work-life balance (Derks & Bakker, 2012; Hymas, 2018; Wayne, Lemmon, Hoobler, Cheung, & Wilson, 2017), yet few have explored other notable factors including, personal and environmental variables. This study adds to the existing research by factoring in additional variables to examine how and if these variables may predict or influence an individual's behaviour depending on their current location or situations. This study also brings a third domain to light, the social domain, which exists away from both, the work and home domains.

Practical Implications

The findings from this study show that, while the majority of respondents own a personal smartphone, they are still connected to their work while out of the office. Respondents will answer a work call on their personal smartphone device. This information could be used two-fold, to enhance existing company polices – providing staff with knowledge of company expectations for out-of-hours contact, and provides the individual with an understanding of what is and is not acceptable, regarding their own personal boundary management style. Empowering individuals and removing any guilt they may feel for not answering a call that is impacting their personal time.

Strengths, Limitations and Future Research

For this study, a number of strengths were noted. Firstly, this study identified a third domain, beyond the work and home domains, previously described by Clark (2000) in their Border theory, and by Ashforth et al. (2000) in their Boundary theory, the social domain. Results suggest that smartphone behaviour, within the social domain, differ from both the work and home domains, and should be considered in future research. Secondly, this research has highlighted that dependents, as an

independent variable, are an important factor to be considered, when researching an individual's behaviour. Finally, this research furthers our understanding of boundary management, and introduces an awareness for individuals and companies to develop and improve existing boundary management levels.

During this research project a number of limitations were noted. Firstly, the number of respondents that were either divorced, widowed or in a civil partnership was low, in comparison to the respondents that were married or single. Future studies could investigate this area further by primarily focusing on just these groups, or by employing a larger sample size. Secondly, as with any self-reporting data there is a need to be aware of bias. The time of the day, the location, and the participant's frame of mind at the time of the survey could have an impact on an individual's responses. Thirdly, the coding of the participant scenario responses was limited to 4 levels. These levels could have been expanded with a larger sample size of respondents. Future studies could focus on pre-defined responses as closed questions, and provide a Likert scale for responses to record a more accurate measure. Fourth, the Ten Item Personality Measure (TIPI) by Gosling, Rentfrow, and Swann (2003) did provide a measurement for the Big 5 personality types, however, there are other measures that could be used to provide more accurate results. Finally, the recruitment of respondents was limited to direct email, Facebook, and LinkedIn, future studies could have a more focused recruitment process, incorporating global locations to provide access to possible cultural differences, working ethics, and social behaviours.

Conclusions

Smartphones have become an integral part in our day-to-day lives. As of 2018, 97% of the Irish population own or having access to smartphones (Goodbody, 2018). As a result, boundary management has become a very topical subject in academic studies. The results from this study suggest that, when certain personal attributes and external variables are combined, smartphone usage behaviours, primarily focusing on boundary management styles, can be predicted. These results may provide a stepping stone for future research in this area and an opportunity to explore other areas within the fields of boundary management and smartphone

behaviours. Expanding on the future research possibilities, this paper may also provide companies and individuals an opportunity to examine their own boundary management styles with an aim to improve their work-life balance ratio. Focusing on areas that will assist their staff to have more productive work lives, and allow individuals to define and maintain clear distinctions between the work and home domains. Future studies may also provide individuals with knowledge about their own smartphone behaviours, providing a basis to build or rebuild diminished boundaries between their work and home domains.

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Appendices

Appendix A - Ethics form A

DEPARTMENT OF TECHNOLOGY AND PSYCHOLOGY ETHICAL APPROVAL FORM A

Title of project: Boundary Management: Are personality types and job satisfaction levels predictors to smartphone usage behaviors?

Name of researcher ___N00172881_____

Email contact _____N00172881@student.iadt.ie_____

Name of supervisor _____Cliona Flood_____

			Yes	No	N/A
1	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?		X		
2	Will you tell participants that their participation is voluntary?		X		
3	Will you obtain written consent for participation (through a signed or 'ticked' consent form)?		X		
4	If the research is observational, will you ask participants for their consent to being observed?		X		
5	Will you tell participants that they may withdraw from the research at any time and for any reason?		X		
6	With questionnaires, will you give participants the option of omitting questions they do not want to answer?		X		
7	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?		X		
8	Will you debrief participants at the end of their participation (i.e., give them a brief explanation of the study)?		X		
9	If your study involves people between 16 and 18 years, will you ensure that passive consent is obtained from parents/guardians, with active consent obtained from both the child and their school/organization?				X
10	If your study involves people under 16 years, will you ensure that active consent is obtained from parents/guardians and that a parent/guardian or their nominee (such as a teacher) will be present throughout the data collection period?				X
11*	Does your study involve an external agency (e.g. for recruitment)?				X
12	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort?			X	
13	Does your project involve work with animals?			X	
14	Do you plan to give individual feedback to participants regarding their scores on any task or scale?			X	
15	Does your study examine any sensitive topics (such as, but not limited to, religion, sexuality, alcohol, crime, drugs, mental health, physical health)			X	
16	Is your study designed to change the mental state of participants in any negative way (such as inducing aggression, frustration, etc?)			X	
17	Will your project involve deliberately misleading participants in any way?			X	
18	Do participants fall into any of the following special groups?	People with learning or communication difficulties		X	

		Patients (either inpatient or outpatient)		X	
		People in custody		X	

If you have ticked **No** to any of questions 1 to 11, or **Yes** to any of questions 12 to 18 you should refer to the PSI Code of Professional Ethics and BPS Guidelines and consult with your supervisor without delay. You will need to fill in Ethical Approval Form B and submit it to the Department of Technology and Psychology Ethics Committee (DTPEC) in place of this form.

There is an obligation on the researcher to bring to the attention of the DTPEC any issues with ethical implications not clearly covered by the above checklist.

I consider that this project has **no** significant ethical implications to be brought before the DTPEC. I have read and understood the specific guidelines for completion of Ethics Application Forms. I am familiar with the PSI Code of Professional Ethics and BPS Guidelines (and have discussed them with my supervisor).

Signed _N00172881__Print Name __N00172881___ Date _____11/05/2018_____
Applicant

I have discussed this project with my student, and I agree that it has no significant ethical implications to be brought before the DTPEC.

Signed _____ Print Name _____ Date _____
_____
Supervisor

* If you are dealing with an external agency, you must submit a letter from that agency with the form A. The letter must provide contact details, and must show that they have agreed for you to carry out your research in their organization.

Appendix B - Participant Information Sheet

Study Title

Boundary Management: Are personality types and job satisfaction levels predictors to smartphone usage behaviours?

Purpose of the Research

The aim of this research is to gain a better understanding of the boundaries people have in place regarding their work and personal life.

Invitation

You are being invited to participate in this research study. The research is being conducted by Peter Byrne, as part of a Master's programme in Cyberpsychology at the Institute of Art, Design, and Technology, Dun Laoghaire, Co. Dublin. Before deciding whether or not to participate, take some time to read the following information which explains why this research is being conducted and what your involvement would consist of. If there is any part of this study that you are unsure of, please contact Peter at N00172881@student.iadt.ie or his supervisor, Cliona at Cliona.Flood@iadt.ie. This study has been approved by the IADT Institute Research Ethics Committee.

Do I have to take part?

No, taking part in this study is voluntary. It is up to you to decide whether or not to take part. If you decide to take part in this study you will be asked to provide your consent using the online form. You are free to change your mind and withdraw from this study at any time.

If I wish to take part, what do I have to do?

Before starting the survey, you will be asked to read and agree to a short consent form. If you agree to partake in the study, you will be asked to complete a questionnaire. The total time should take no more than 10 minutes to complete. Following the survey, you will be guided through a debrief page to thank you for your time and ensure you are happy to include your data in the analysis.

How will my information be used and who will have access to it?

Your data will be collated anonymously from an online survey website and exported to an encrypted USB device for analysis. All data will be retained by the researcher until the final grades of the Master's programme have been published. The results from this study will be used in the researcher's thesis paper. Only the researcher and their supervisor will have access to the data. The data will be collected and analysed as part of the MSc in Cyberpsychology at the Institute of Art, Design and Technology, Dublin. If you would like to receive a copy of your data following the experiment, please email Peter at N00172881@student.iadt.ie.

Appendix C - Participant Consent Form

You are invited to participate in a web-based online survey on Boundary Management. This is a research project being conducted by Peter Byrne, a student at the Institute of Art, Design, and Technology, Dun Laoghaire, Co. Dublin. The online survey should take no longer than 10 minutes to complete.

By checking the agree box I confirm that:

- I have read and understand the information sheet for the above study and have had the opportunity to ask questions.
- I understand that all survey information will remain anonymous and confidential.
- I understand that my participation in this study is voluntary.
- I am free to withdraw from the study at any time without penalty or giving a reason.
- I am over the age of 18 years and I agree to take part in this study.
- I would like to participate in this research Please select your choice below.

Consent to participate

Mark only one.

- I Agree
- I Disagree

Appendix D - Participant Debrief forms

Two Participant debrief forms were created, one for successful completion of the survey, and one for those who did not agree to consent.

Debrief on successful completion of the survey

Thank you for your participation.

You have just completed your participation in a research study conducted by Peter Byrne (N00172881@student.iadt.ie).

The purpose of this study is to investigate correlations between job satisfaction levels, personality types, and smartphone usage behaviours. Your participation in this study is voluntary. If you wish to, you can withdraw from this study at any time. All collected data and records of your participation will be destroyed and there is no penalty if you withdraw.

If you have been affected by any of the questions asked please contact the Samaritans at 116 123.

If you have any questions about the research, please contact the researcher at the email address provided above.

Debrief when participant consent has not been provided

Thank you for your consideration.

You have provided no data towards this study. If you have any questions regarding this survey please contact the researcher, Peter, at N00172881@student.iadt.ie.

The purpose of this study is to investigate correlations between job satisfaction levels, personality types, and smartphone usage behaviours.

If you have been affected by any part of this study please contact the Samaritans at 116 123.

Appendix E - Online questionnaire

Section 1: Personality questionnaire

I see myself as extroverted, enthusiastic.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as critical, quarrelsome.

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as dependable, self-disciplined

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as anxious, easily upset

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as open to new experiences, complex

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as reserved, quiet

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as sympathetic, warm

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as disorganised, careless

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as calm, emotionally stable

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

I see myself as conventional, not creative

	1	2	3	4	5	6	7	
Strongly Disagree	◯	◯	◯	◯	◯	◯	◯	Strongly Agree

Smartphone usage

The smartphone I have is?

- my own personal device
- a work supplied device
- I have both a work and personal device

Where do you leave your phone when in work?

- on or near my desk
- in my pocket
- in my handbag
- in a drawer
- powered off
- Other:

Does your company have a mobile phone usage policy?

- Yes
- No
- Don't know

Do you check your phone first thing in the morning?

- Yes
- No

Do you have social media apps on your phone?

- Yes
- No

Do you bring your phone to the bathroom?

- Yes
- No

Do you check your phone before going to bed?

- Yes
- No

Are you expected to answer your phone out of hours / weekends?

- Yes
- No
- It's complicated

At which level of battery power left do you get anxious to charge your phone?

- 0-20%
- 21-40%
- 41-60%
- 61-80%
- 81-100%
- I don't get anxious about my battery running low

Where do you leave your phone when you arrive home from work?

- beside me
- in my pocket
- in my handbag
- in a drawer
- powered off
- Other:

"You are on a night out socialising with friends and your phone beeps with social media notifications". - How do you react?

"You are at home having dinner and your phone rings, you can see from the number that it is your manager / supervisor". - How do you react?

“You are in a meeting in work and your phone beeps." - How do you react?

"Phubbing is the term used when you snub someone in favour of your mobile phone." - Have you ever experienced this, and if so, how did it make you feel?

Job Satisfaction

In my job - I receive recognition for a job well done

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

In my job - I feel close to the people at work

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

I feel good about the company I work for

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

I feel secure about my job

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

I believe management is concerned about me

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

On the whole, I believe work is good for my physical health

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

My wages reflect the job I do

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

All my talents and skills are used at work.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

I get along with my supervisors

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

I feel good about my job

Demographics

What is your age?

- 18-21
- 22-25
- 26-30
- 31-40
- 41-50
- 51-60
- 61+

Gender?

- Male
- Female
- Other:

Employment status

- Employed (full-time)
- Employed (part-time)
- Unemployed
- Student
- Retired
- Self-employed
- Prefer not to say

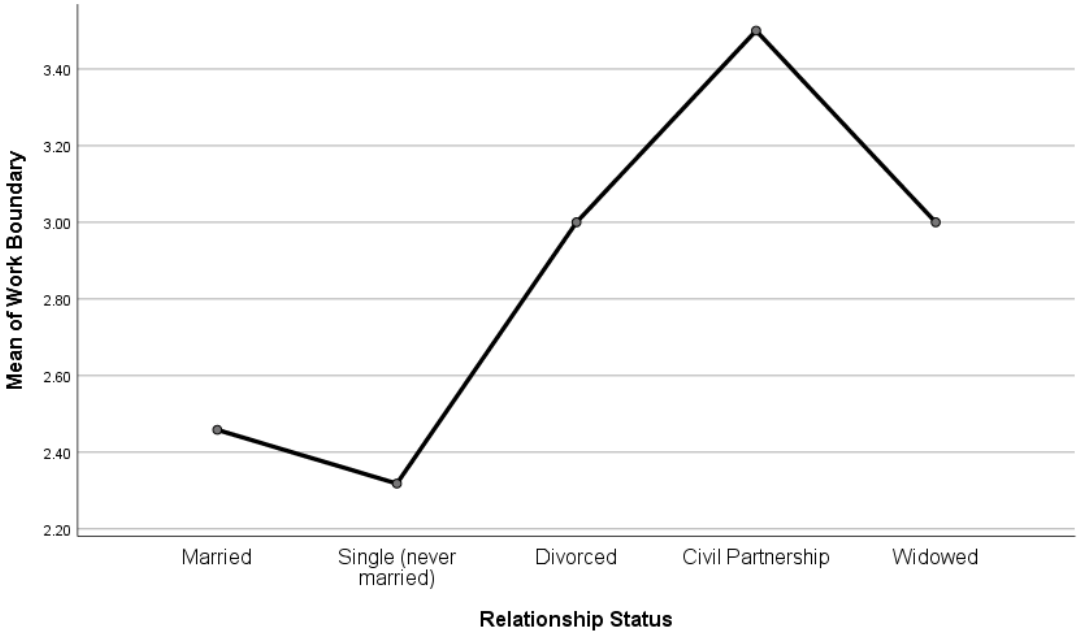
Relationship status

- Single (never married)
- Married
- Civil partnership
- Divorced
- Widowed

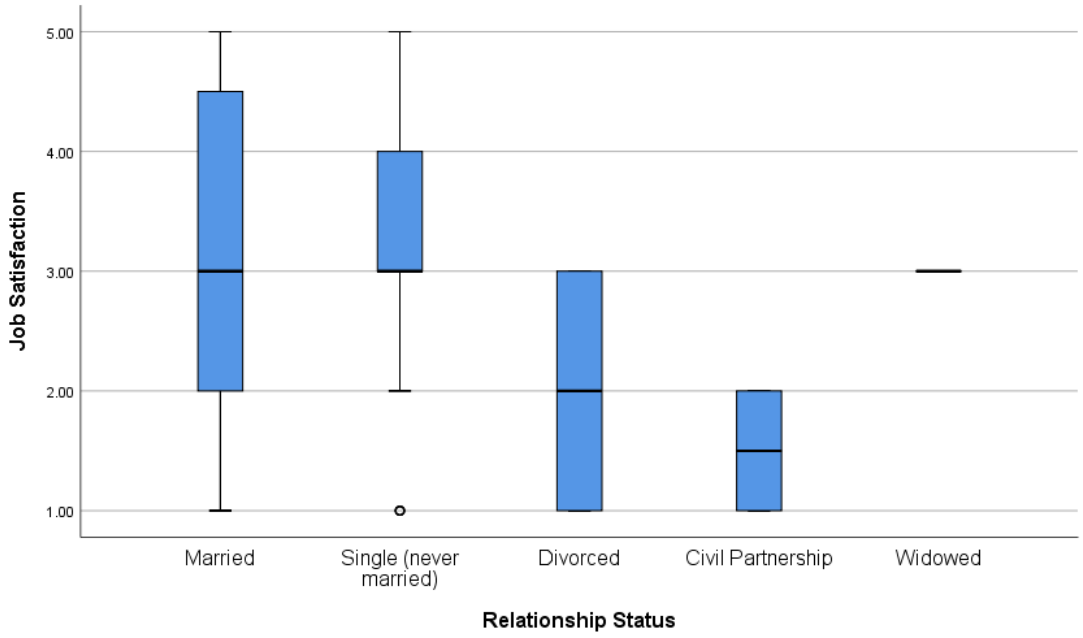
Do you have dependents?

- Yes - Children
- Yes - Other
- No

Appendix F – Means plot of work boundary by relationship status



Appendix G – Box Plot of frequency of job satisfaction levels per relationship status



The scale for job satisfaction is from 1 to 5, 1 = very low, 5 = very high.

Appendix H – Pearson correlation of work boundary management levels by extraversion