The Influence of Personality Traits and ICT use on the Boundary Management of Home-Based Teleworkers

by

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Contents

Abbreviations

BOS – Bristol Online Surveys

ICT's – Information and Communications Technology

IPA – Interpretative Phenomenological Analysis

IPIP – International Personality Inventory Pool

KMO – Kaiser-Meyer-Olkin measure of sampling adequacy

M – Mean

MBTI – Myers Briggs Personality Type Indicator

MED – Median

MRD – Minimum Reliable Difference Calculation

MSIT – Management Standards Indicator Tool

NEO PI-R – Neo Personality Inventory (measure of the big five personality traits)

PDA – Personal Digital Assistant

SD – Standard Deviation

TIPI – Ten Item Personality Inventory

Work-nonwork – Interruptions from work entering the non-work sphere

Nonwork-work – Interruptions from nonwork entering the work sphere

Work/Nonwork – Related to management of the boundary of both spheres

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Abstract

This mixed methods study contains two studies that are linked together sequentially to explore the work/nonwork boundary management of home-based teleworkers through the overarching research question: 'Do personality traits and ICT use influence how teleworkers manage their work-nonwork boundary?' Mobile ICT's such as smartphones are becoming increasingly more important for work and they can have a boundary blurring effect on the work-nonwork boundary as they may be used at anytime and anywhere. However, the issue of how personality traits influence ICT use and work-nonwork boundary management has been neglected, particularly in a teleworking context. As people manage their work-nonwork boundaries differently and some people work better at home than others, it is not known to what extent personality traits play a role in boundary management and ICT use. Study One explores the relationships between the big five personality traits of conscientiousness, extraversion and neuroticism, the facet level traits of dutifulness, gregariousness, and impulsiveness and work/nonwork boundary interruptions. It also explores the relationships between these traits and frequency of technology use for work purposes and the relationship of ICT's (smartphones, tablets and laptops) to work/nonwork boundary interruptions. Data was collected via an online survey, with recruitment from social media sites and Local Authorities totalling 391 usable responses. Conscientiousness was found to be negatively related to work-nonwork and nonwork-work interruptions, dutifulness negatively related to nonwork-work interruptions, neuroticism positively related to work-nonwork interruptions and impulsiveness positively related to nonwork-work interruptions. Personality traits were found to have small correlations to boundary interruptions which was a new finding, although it was expected that the correlations might have been larger than they were found to be. Extraversion was positively related to frequency of laptop use and extraversion and gregariousness were positively related to frequency of smartphone use, neuroticism was negatively related to frequency of smartphone use which were new findings in a work context. Frequency of ICT use was positively related to work-nonwork interruptions, with smartphones showing the highest correlation, followed by tablet and then laptop displaying a stepped effect. This finding of a stepped effect was new and suggests that the portability of smartphones makes them much easier to connect to work out of hours, than laptops and tablets. The second study included interviews from 20 participants who had completed the survey, four from each of five boundary management groups (Strong Segmentors, Strong Integrators, Moderate Managers, Work Boundary Protectors and Family Boundary Protectors). The groups were derived from scores from the survey data, in order to investigate in more depth, other factors that influenced boundary management interruptions that were not picked up in Study One and specifically the idiosyncrasies of ICT use between groups. The qualitative data was analysed via Template Analysis and the final themes in the template were Boundary Management, Crafting Work, Individual Differences, Telework and Interruptions. The theme of Boundary Management was dealt with in this study. Some key findings were that Study Two built upon Study One by finding that proactivity was a key theme and that this trait may be particularly active while individuals are teleworking due to the context. ICT's were used in a way that reflected the wide ranging boundary management preferences of the individuals using them.

Chapter One
Introduction

1.1 Introduction to the Topic of Telework

Home-based telework is a new and flexible way of working that has increased in popularity over the past decade (ONS, 2015). An explanation of what home-based telework consists of is provided by O'Neill, Hambley, Greidanus, MacDonnell & Kline (2009):

> '*When teleworkers work from their homes, and they use information and communication technology (ICT) to keep in touch with centralised work locations, they are frequently referred to as 'home-based' teleworkers'* (p145).

Telework requires the use of ICT's and the growth of telework has been enabled by advances in portable technology that facilitate people to work away from an office base, but remain connected to managers, colleagues and clients (Golden, 2009). Home-based telework offers additional flexibility (CBI, 2011) and individuals can access work opportunities even if they have caring responsibilities or other issues that may affect their ability to work in a traditional office environment (Baker, Moon & Ward, 2006 and Moon, Linden, Bricout & Baker, 2014). This flexibility is highly desired by many workers (Stack Overflow, 2017). In the UK, approximately 4 million people work remotely for some of the time, which constitutes 13.7% of the workforce (ONS, 2015). This is a sizeable group of people that is expected to grow, because recent legislation paved the way to increasing teleworking opportunities for more people (Gov.UK, 2017). There are a number of unique issues that teleworkers face in comparison to their office working counterparts which will be discussed in the following paragraphs, but the uniqueness of this type of work and the growing number of people engaging in it merits research attention.

1.2 The Existing Literature and Rationale for the Study

This section will introduce some of the literature related to telework and show that there are some gaps in the literature and give a rationale for this study.

1.2.1 Boundary Management

Work and non-work can be perceived as two separate spheres with a boundary between the two which can be managed actively in different ways (de Man, de Bruijn & Groenveld, 2008). According to Nippert-Eng (1996) there are two main strategies that individuals might use to manage this boundary and these are segmentation and integration. She suggests that segmentation is the preference for firm boundaries, with work and non-work kept separate from each other, while integration allows a permeable boundary with mixing of the two spheres. When work activities are conducted during non-work time or vice versa, this could be said to be integrating the spheres and creating boundary blurring. More recent studies (Cohen, Duberley & Musson, 2009, Golden & Geisler, 2007 and Hislop & Axtell, 2011) have found that boundary management is more complex than this polarised approach.

Boundary management preferences can be grouped into more than two categories and this acknowledges that boundary management differences are complex and go beyond mere segmentation and integration. Kossek and collegaues developed a boundary management theory which categorised individuals into one of six boundary management groups based on their preferences for segmentation, integration, their perceptions of control over their boundary and also identity centrality (whether people invest their identity into work, family or both) (Kossek & Lautsch, 2008 and Kossek, Ruderman, Braddy & Hannum, 2012). In Kossek et al.'s (2012) theory, there are six boundary management groups which are: 1) Work warriors: who tend to prioritise work and experience a high degree of work-nonwork interruptions, 2) Overwhelmed reactors: who have highly integrated behaviours and prioritise both work and non-work more or less equally, but may feel overwhelmed by the degree of integration, 3) Family guardians: tend to experience more nonwork-work interruptions than vice versa and prevent work interruptions into their non-work lives as much as possible, 4) Fusion lovers: may identify with both spheres eqully, enjoying an integrative lifestyle and not experiencing it negatively, 5) Dividers: prefer a segmented approach, investing fully in both spheres but preferring minimal interruptions, 6) Non-work eclectics: tend to centre their identies more around non-work and may have a high degree of interruptions, but still feel in control of their boundaries.

Kossek's theory shows that boundary management is complex and individuals have a variety of preferences in how they manage their boundries and her WorkLife Indicator Tool provides a survey measure in which individuals can be placed into these six groups based on their survey scores (Kossek et al., 2012). Utilising boundary management group theories such as these, can provide a basis with which to research the complex differences in boundary management in a practical way. It enables exploration of other preferences that do not fit comfortably into either segmentation or integration. The next section will consider some of the specific boundary management issues related to the teleworking context.

1.2.2 Telework and Boundary Management

In a home-based teleworking context, individuals both work and live in the same space, which means that the physical boundary is naturally blurred between the spheres. Preferences for integration and segmentation can also be expressed in a home-based teleworking context, for example; working in a dedicated room may create segmentation while leaving work paraphernalia out after work can serve to integrate (Mustafa & Gold, 2013). Boundary management for teleworkers is a different matter than for people who work at a separate base, because remote workers need to set up their own work space which takes individual time and effort (Hislop & Axtell, 2009). In an office, the workstation is already in situ and as humans learn from the behaviour of others (Bandura, 1977) there may be social cues from other workers, such as when is socially acceptable to have breaks or leave for the day. As home-based teleworking is typically more isolated (Morganson, Major, Oborn, Verive & Heelan, 2010) there may be fewer of these social cues with which to learn from. Remote workers negotiate their boundaries much more independently, thus the need to create strategies to manage these boundaries of living and working in the same space (Kreiner, Hollensbe & Sheep, 2009). This suggests that boundary management is very different for home-based teleworkers in comparison to people who do not work at home and that the working environment may be heavily shaped by the individual. This being the case, it might be that individual differences could be particularly active in how people go about shaping such an environment and opens up the possibility of exploring more about the individual differences that influence this process.

1.2.3 Information and Communication Technologies and Boundary Management

Although advances in information and communication technologies (ICT's) have brought new working opportunities and possibilities (MacKenzie, 2011), they have also led to the potential to permanently access and be accessible to work through mobile telephones 24 hours a day, seven days a week (Prasopoulou, Pouloudi & Pantelli, 2006). The use of ICT devices such as smartphones can contribute to boundary blurring, as they can be easily used at any time for work or non-work purposes, for example smartphones can be used to check work emails during breaks or holidays, or to communicate with family during work time (Montgomery, Panagopoulou, Peeters & Schaufeli, 2009). So, these devices may make the boundary between work and non-work less clear, but even if they do, it does not automatically follow that this blurring leads to negative consequences (Piszczek, 2017 and Duxbury, Higgins, Smart & Stevenson, 2014). The smartphone itself is a neutral device in that it is used in different ways by different people, it does not force anybody to be permanently connected to it, or to switch it off, but individuals make choices over how they use its functions (Derks & Bakker, 2010).

As well as contributing to boundary blurring, smartphones can also be proactively used as a tool to manage boundaries and to facilitate segmentation and integration, for example by using a separate electronic diary, or the same diary for work and personal use (Kreiner et al., 2009 and Golden & Geisler, 2007). The use of ICT's by individuals might also reflect their boundary management preferences (Derks, Bakker, Peters & van Wingerden, 2016). However, staying connected to work through the medium of a smartphone or laptop, can reduce the amount of time that people take to recover from work and this can contribute to negative consequences such as burnout for some people (Derks & Bakker, 2014). As home-based teleworkers are dependent upon ICT's to carry out their jobs (O' Neill et al., 2009), their relationship to the technology that they use is particularly important. Individuals decide on their own boundaries with smartphones and how they manage them (Dery & McCormick, 2012) and in a teleworking context there may be fewer social learning cues (Bandura, 1977) about how to manage these, than might be experienced in an office.

Many studies have considered the role of mobile telephones in different working environments such as office based sales representatives (Duxbury et al., 2014), that explored

why the use of ICT's changed the work-nonwork boundary for some people but not others. This study found that individuals related to their mobile phones in three ways, through 'integration', 'successful segmentation' and 'struggling segmentation'. The first two groups managed the technology in ways that generally worked for them, while the 'struggling segmentors' had more of a battle on their hands and found it difficult to manage it in a way that they were satisfied with. This shows that there are differences in how individuals use smartphones and the effects that this has on their boundary. Other studies include one of nomadic loan officers (Cousins & Robey, 2005) and non-academic office based university staff (Boswell & Olson-Buchanan, 2007). The latter showed that traits played a role in how these workers used their phones, because promotion ambition was related to keeping the phone switched on after working hours. However, the way that people use these devices in a home-based teleworking context could be different than from these working environments.

Some studies have explored ICT use in remote working contexts such as Hislop, Axtell, Collins, Daniels, Glover & Niven (2015), who found that individuals tended to have different sentiments towards their phones in a teleworking context and these were: optimistic, pessimistic, conflicted and indifferent. This showed that sometimes the influence of the devices on work were not perceived as either positive or negative, but sometimes contradictory. So, individuals' experiences of their ICT's are different and sometimes these experiences can be complex. Derks, Ten Brummelhuis, Zecic & Bakker (2014) found that smartphone use was not related to work-nonwork interference, but that using smartphones did reduce the amount of time that remote workers had to relax and detach from work. This suggests that even when smartphones were found not to increase work-nonwork interruptions, they could still have problematic effects on some of their users. However, Derks & Bakker (2014) found that intensive smartphone use was related to work-nonwork interruptions in remote workers. Nevertheless, intensive users who found ways to psychologically detach from work did not have more work-nonwork interruptions, suggesting that the relationship between smartphone and work-nonwork interruptions is complex and intertwined with other factors. So, the picture of the influence of smartphones on boundaries in remote working contexts is multifaceted, but it is clear that the way that people interpret their ICT's plays a role, and the individual ways that people interact with their phones is of importance. Although individual differences seem to be at play, there are very few studies

that have explored the role of personality traits in this process and they could explain more about how individuals use their ICT's in relation to the boundary. The next section will assess the contribution of personality traits to ICT use.

1.2.4 Personality and ICT's

An exploration of personality traits is one way to assess individual differences between people and other variables (Cooper, 2015). As discussed above, the teleworking context is one in which individual differences may play a significant role, so an exploration of traits in this context will enable us to look closer at the key relationships of personality traits, boundary management and ICT use. The literature showing the effects of personality on ICT use will now be briefly explained. Personality traits do relate to ICT use in non-work contexts, for example extraverts are more likely to possess a smartphone (Lane & Manner, 2011) and receive more incoming calls (Butt & Phillips, 2008 and Chittaranjan, Blom & Gatica-Perez, 2011). Neuroticism is related to using text messaging and emails more frequently (Butt & Phillips, 2008 and Lane & Manner, 2011) and conscientiousness is negatively related to problematic technology use (Buckner, Castille & Sheets, 2012). There are few studies into the effects of personality traits on ICT use in a teleworking context, but two studies investigated 'cyberslacking' (using the internet for non-work during work) in remote workers and found that neuroticism and procrastination were positively related to cyberslacking and honesty and conscientiousness negatively related (O'Neill, Hambley & Chatellier, 2014a and O'Neill, Hambley & Bercovich, 2014b). These findings have implications for understanding more about the factors that may affect productivity while working in a remote context, because cyberslacking is one way that the boundary can be blurred as non-work activities enter work time and subsequently reduce productivity.

So, these studies taken together show that personality traits play some role in how people utilise their ICT's and in particular that extraversion, conscientiousness and neuroticism play a role in the frequency of usage of some of its features (Butt & Phillips, 2008, Chittaranjan et al., 2011, Lane & Manner, 2011 and Buckner et al., 2012). However, a full range of traits has not been examined in the literature. Similarly, the majority of literature in this sphere explores problematic or everyday ICT use (Takao, Takahashi & Kitamura, 2009, Bianchi & Phillips, 2005 and Jung-Yeon, Sam-Wook, Dai-Jin, Jung-Seok, Jaewon, Heejune, Eun-Jeung &

Won-Young, 2014) but work-based studies, particularly those related to home-based teleworkers are very much lacking. This is a problem, because ICT use is such a core feature of a telework role (O'Neill et al., 2009) and so the way that home-based teleworkers use their ICT's and the factors that influence their use is likely to be an important issue in this context.

1.2.5 Personality and Boundary Management

Although many studies have investigated the effects of teleworking on individuals, be they negative or positive (Morganson et al., 2010, Chen & Nath, 2008 and Biron & Van Veldhoven, 2016), there has been less focus on how individual differences influence teleworking practices and this is the case for personality variables. A study by Brown (2010) used the Myers Briggs Personality Type Indicator (MBTI) to explore this. The MBTI is a type theory of personality claiming that individuals can be placed into one of 16 personality categories and individuals are placed into these groups based on how they score on four dimensions. The dimensions are 1) Extraversion-Introversion (E or I, related to preference for the outer or inner world), 2) Sensing-Intuition (S or N, related to preference for concrete information or meaning and patterns in the information), 3) Thinking-Feeling (T or F, related to preference for making decisions based on consistency and logic, or the needs of the individuals affected by the decisions) and 4) Judging-Perceiving (J or P, related to preference for structure and planning or spontaneity). Individuals have a preference for one or the other of each of these poles in the four pairs, for example someone who had an ENTJ personality would have a preference for Extraversion (E), Intuition (N), Thinking (T) and Judging (J) making up the letters ENTJ (The Myers & Briggs Foundation, 2013). Brown (2010) concluded that some personality types from the MBTI model experience more difficulties while teleworking than others. This was particularly the case for the 'ESFP', 'ENFP', 'INTP' and 'INFJ' types who seemed to struggle more with a lack of consistent interaction and structure, that a traditional office might provide. This might be expected as people scoring highly in 'perceiving' tend to create less structure in their lives (The Myers & Briggs Foundation, 2013).

Traits such as the need for autonomy were found to be predictive of job performance in teleworkers (O'Neill et al., 2009a). Although some traits have been explored to investigate teleworking practices, there is a gap in exploration of the role of the big five personality traits and particularly to their influence on the management of the work/non-work boundary. The

big five personality model is particularly important because it has been used frequently in organisational research and has been stringently tested and found to be psychometrically robust (Costa, 1996). The lack of studies into the influence of the big five traits in this context leaves a gap in the literature that could be explored through further studies that focus on the influence of these traits. Similarly, no known literature explores a combination of the influence of personality traits on boundary interruptions and ICT use, specifically in teleworkers. It is not known from the literature if certain personality traits are related to experiencing more interruptions between the spheres, or whether personality traits play a role in how people use technology for work purposes. Likewise, the specific influence of different types of technology on the work-nonwork boundary is unclear.

There are dozens of potential variables which could influence teleworkers' working practices and it is not possible to explore all of these in one study. Many studies already exist which have assessed the environmental factors of telework, including studies into telework and isolation (Mann & Holdsworth, 2003), productivity and absenteeism (Harpaz, 2002 and Halford, 2005), the need to manage by results not physical presence (Chen & Nath, 2008), issues related to perceived lack of career progression opportunities (Chen & Nath, 2008), negative effects on camaraderie and team spirit (Golden, 2007), but that it can be beneficial for work-life balance (Wheatley, 2012), but also bring with it additional work-life conflict (Tietze & Musson, 2005). As many environmental factors unique to teleworking have already been explored, this study will have primary emphasis on individual factors, in particular personality. This is because a review of the literature shows that the individual factors that contribute to teleworking practices has been particularly neglected, so this study will contribute to establishing new findings in relation to these factors which have not been so significantly explored.

1.2.6 Conclusions of the Review of the Literature

A review of the literature has shown that there is a gap related to the influence of the five-factor traits on work-related ICT use, work/nonwork boundary management and also the effects of frequency of ICT use on the boundary, specifically in home-based teleworkers. This study will add to the literature by finding if personality traits are related to boundary interruptions and ICT use and whether ICT use influences boundary interruptions. If these

relationships do exist, it will assess the strength and nature of these relationships. It will then qualitatively explore the nature of the boundary management of individual home-based teleworkers, based on their boundary management preferences as categorised based on their survey scores. In particular, it will assess how and why home-based teleworkers in these different groups use their ICT's in the way that they do and whether there are similarities and differences between the groups. These findings will add to the knowledge base related to home-based teleworking and fill a gap in the current literature. As teleworking is becoming increasingly popular (CBI, 2011) and is projected to become normalised in the UK in the near future (Coyne, 2016), it will be useful for organisations who already have teleworking employees, those who wish to introduce teleworking and home-based teleworkers themselves. These groups may benefit from more insight into the influences on boundary management in a home-based teleworking context.

1.3 The Research Questions and Method

This study addresses the nature of work-nonwork boundary management in home-based teleworkers and the factors influencing their boundary management. The overarching research question for this study is *'Do personality traits and ICT use influence how teleworkers manage their work-nonwork boundary?'.* Answering this research question was conducted in two parts, by using a mixed methods design, which involved collecting quantitative data to conduct Study One and then exploring in greater depth some of the quantitative results through the collection and analysis of qualitative data in Study Two.

In the first, quantitative phase of the study, three research questions were answered by exploring 13 hypotheses (the development of which can be found in Chapter Two, Section 2.7). The three research questions were as follows:

1) Are there relationships between personality traits and:
    a) the way that people manage their work-nonwork boundary (specifically interruptions between spheres)? and
    b) frequency of ICT use?

    If these relationships do exist, what is their nature and strength?

2) Is there a relationship between frequency of ICT use and work-nonwork boundary management (specifically interruptions between spheres)? If these relationships do exist, what is their nature and strength?
3) What is the overall relationship of the three variables: personality traits, work-nonwork boundary management and frequency of ICT use when assessed together?

Survey data was collected from teleworkers who spent some of their time working from home, whether that was full-time, part-time or for some of the time and had been doing so for any length of time. Data was collected primarily through social media platforms, two Local Authorities and an alumni newsletter. This tested whether traits from the five-factor model of personality were related to work-nonwork boundary management in the form of work-nonwork and nonwork-work interruptions. It also tested whether personality traits were related to frequency of ICT use and whether frequency of ICT use was related to work-nonwork interruptions.

Study Two consisted of interviewing a range of participants who completed the survey. The participants from the survey were split into five groups based on their boundary management characteristics which were established through the results of the survey. The five boundary management groups were labelled: Strong Segmentors, Strong Integrators, Moderate Managers, Work-Boundary Protectors and Family Boundary Protectors based on the degree of interruptions they experienced between the spheres. A full explanation of the selection criteria and formulation of the boundary management groups is explained in detail in Chapter Five, Section 5.5.5 and Section 5.5.6, but a short rationale for grouping participants and how they enable an in-depth exploration for a qualitative study is provided in the next two paragraphs. Four participants from each of the five groups were interviewed and the interviews were carried out by telephone or Skype according to the preference of the individual interviewee.

Qualitative Study Two followed up the quantitative study to assist in clarifying the quantitative results, which showed that personality traits had some, but a more limited influence on the tested variables than were expected. As personality variables were found to have a significant but minor effect in Study One, this suggested that there were other factors that likely had an influence more than traits. Study Two aimed to drill down to discover more

about what some of these other factors might be. In particular, the influence of boundary management preferences were explored (through interviewing people in the different groups) and how individuals in these groups may function in a day to day home-based teleworking context. If the personality traits had less import, perhaps the boundary management behaviours themselves were an important factor and worth further exploration. Selecting participants based on their boundary management category, enabled close scrutiny of the behaviours of different people within these groups and whether there were similarities and differences between these groups.

Similarly, frequency of ICT use had a stronger effect on boundary management than the tested personality variables. This being the case, it was decided to look more in-depth at the use of ICT's in teleworkers, as this was shown to have a stronger effect on boundary interruptions from Study One. So, Study One established that there was a relationship between frequency of ICT use and work-nonwork boundary interruptions. Study Two aimed to assess the nature of these ICT interruptions and to explore if there were interactions between the ICT use and the different groups and if commonalities and differences could be found. To explore this, the second, qualitative phase of the study had three research questions designed to explore in more depth ICT use and boundary management. The three research questions associated with Study Two were:

1) What is the nature of the relationship between the boundary management groups and boundary management practices?
2) What factors influence the differences in boundary management groups and practices?
3) In what ways does ICT use influence boundary management in individuals who report managing their boundaries in different ways?

Now that the research questions and methods of the study have been explained, the next section will give an overview of the structure of the thesis and how it will fit together.

1.4 Overview of the Thesis Structure

Chapter Two contains the literature review outlining the research into teleworking, work-nonwork boundary, technology use and personality and the available literature on how these variables interact. Chapter Three then explains the mixed method design and procedure used for the study and how Study One and Two are drawn together to give an overview of the study as a whole. This leads up to Chapter Four which pertains to Study One which is the quantitative first part of the entire study and this chapter contains the design, research philosophy, materials, procedures, results, discussion, limitations and future directions for research of the quantitative study. At the end of Chapter Four, Section 4.7, several questions that the results of Study One raised are discussed as a lead in to the rationale for Study Two. It is shown in this section how Study Two builds upon Study One. This is done before Chapter Five, which consists of the whole of Study Two, the qualitative second part of the study, and this contains the design, research philosophy, materials, procedures, results, discussion, and limitations of the qualitative study. Study One and Study Two are presented in two separate chapters even though they are interlinked to aid accessibility for the reader. Chapter Six draws both studies together to explore and discuss the overall picture developed by the quantitative and qualitative studies together, showing what has been learned from both, that could not have been discovered with only one or the other. This chapter will also present the limitations of the mixed methods study as a whole and some future directions for research that the study findings suggest. This leads on to Chapter Seven which draws conclusions from the entire study and summarises its key findings.

1.5 Chapter Summary

Chapter One of this thesis has introduced and laid out the basis for the research study that will be presented in-depth in the following chapters. It explained that the focus of this study is to explore the relationships between personality traits, ICT use and the work-nonwork boundary in home-based teleworkers. The focus of this study is important because issues of personality in relation to the work-nonwork boundary and in particular; ICT use for work purposes has been very much neglected within the literature. This is especially the case for home-based teleworkers. This chapter explained that telework is growing in popularity and more people and organisations will be influenced by it in future, so understanding more about

teleworking practices is beneficial for all stakeholders of telework. Mobile technology use is an important topic because of its influence in boundary management such that it can be used to encourage integration or segmentation. In a home-based teleworking context, mobile technology is vital for the job and the boundary between work and non-work is already physically integrated. The way that it is used in this naturally integrated context could be of significance in boundary management practices, especially for individuals with differing preferences. This chapter introduced that this study will explore ICT use and boundary management strategies, in groups expressing boundary management differences beyond segmentation and integration through Study Two. This will contribute to assisting in our understanding of a wider range of boundary management preferences in a teleworking context.

The next chapter; Literature Review, will assess the literature related to the main components of this study: the relationship of personality to ICT use and the work/nonwork boundary, the relationships between ICT use and the work-nonwork boundary and the specific boundary management issues that may be experienced in a home-based teleworking context.

Chapter Two
Literature Review

2.1 Introduction

In order to address the research questions adequately, various bodies of research need to be surveyed, discussed and brought together. This literature review will be split into four sections, each covering a different body of research, that enables an exploration and development of the research questions and what can be established from the known literature. Each section will contain its own brief conclusion. The first section (Section 2.2) will explore the literature related to telework, its origins, current state and its advantages and disadvantages. This will set the scene of the study which takes place in a home-based teleworking context and shows that as it is becoming increasingly more popular, research into telework practices is important for organisations and individuals to inform good working practices. The second section (Section 2.3) will assess boundary theory and the nature of work/nonwork interruptions before showing the relevance of boundary theory in a telework context. Boundary theory underpins the entire study and all of its questions and in particular, the concept of boundary preferences (Kossek et al., 2012) informed the selection of participants in Study Two with which to answer qualitative research questions one to three. The third section (Section 2.4) will explore mobile technology in work contexts and then its known influences on the work/nonwork boundary. This section will build toward informing quantitative research question three and also qualitative research question three, which specifically assesses the influence of ICT use on boundaries in a teleworking context. The fourth section (Section 2.5) will introduce personality theory and the five-factor model and then review the literature related to the effects of personality on boundary management and ICT use. The literature will then be drawn together to give a rationale for the study (Section 2.6), leading to the development of quantitative research questions one to three and subsequent hypotheses (Section 2.7) which are then summarised (Section 2.8). Section 2.9 will then briefly discuss how the literature review also showed a need for a qualitative study in a teleworking context, but the development of qualitative research questions one to three

will be covered in-depth in Chapter Four, Section 4.7 after the results of Study One are known, because they are linked in to the findings of Study One.

2.2 Teleworking

This section will introduce the topic of telework by defining it and explaining its origins in Section 2.2.1 before Section 2.2.2 discusses the current prevalence of telework and why it is a relevant topic in the current working climate. Section 2.2.3 will address who the stakeholders of telework are and who research into the topic might be important for. Section 2.2.4 discusses the advantages and disadvantages of telework from a societal, organisational and individual level and how it can be a complex working arrangement that has both benefits and weaknesses. This section will show that as the telework context is unique and will likely continue to grow in popularity, research into teleworking practices may be of use to both the individuals and organisations that it effects.

2.2.1 Defining Telework and its Origins

There is no simple definition of 'telework', as different sources include different people as teleworkers, for example there can be variation in whether self-employed people are included or not (Flexibility, 2015 and Global Workplace Analytics, 2013). However, there are two distinct aspects of telework which are agreed upon and these are a) that technology is used to enable the work to take place and b) the location of where the work takes place is away from a central location (Baruch, 2001a). Telework can take place from many different locations, but it is different from 'mobile work' which can be done at any place including while travelling and 'nomadic work' where there is no set base (Makoto Su & Mark, 2008). Telework was formerly known as 'telecommuting', particularly in the USA (Brown, 2010) but more recently 'telework' has replaced this term and it can be done part-time, full-time or for some of the time (Harris, 2003). A definition of 'home-based telework' is:

> '*When teleworkers work from their homes, and they use information and communication technology (ICT) to keep in touch with centralised work locations, they are frequently referred to as 'home-based' teleworkers'* (O'Neill et al., 2009, p145).

So, when people use their homes to work from as a base they are engaging in home-based telework. Self-employed people make up a large number of teleworkers (Flexibility, 2015) and are included in this definition. 'Home-based teleworkers' is the term that will be used to describe the participants in this study, as they fit this description of O'Neill et al., (2009) as people working from home and using technology to do so.

Teleworking has grown since the 1970's, where oil shortages resulted in the rationing of car fuels (Brown, 2010). This created discussion about practical solutions to becoming less dependent on fuel and lowering its consumption and teleworking was one obvious way to achieve this goal (Mears, 2007). In the UK, British Telecom was a pioneer of teleworking, introducing a teleworking scheme in 1986 and claims that the teleworking scheme saves the company millions each year (de Castella, 2011). As telework requires the use of information and computer technology (Golden, 2009) the development of easily accessible mobile technology such as laptops, tablets, smartphones and software such as Skype have made teleworking easier to engage in for more people. The next section will discuss the prevalence of telework in the UK. The international context of its trends will also be explored because these influence the UK, for example the teleworking policies of multinationals operating in the UK may effect individuals that are working within them.

2.2.2 The Prevalence of Telework and its Trends

Establishing exact figures of teleworkers is difficult, because surveys define telework differently, they include different people; some count small businesses and voluntary workers while others do not and some include people who telework daily, while others include people who telework a few times a year (Global Workplace Analytics, 2013). In the UK, teleworking is more common amongst people who are older, highly skilled and on average earn a higher wage than the general population and nearly two-thirds are self-employed (ONS, 2014b). In the UK there are regional variations, in the South West 17% of people telework while only 10.7% in Scotland do (ONS, 2014a). Contrary to popular belief more males (16.1%) in the UK work from home than women (8.2%) (TUC, 2015), as home working is more common in the agriculture, construction and IT industries and these are more usually worked in by men (ONS, 2014b). In the United Kingdom in 2011, 59% of employers offered teleworking as an option, up from 13% in 2006 (CBI, 2011). People working from home as their primary workplace was

4.9% in 2010 (Telework Association, 2012). According to the Office of National Statistics Labour Force Survey (ONS, 2015) remote workers have increased to nearly one in seven over the past 10 years, which is 4 million or 13.7% of the workforce.

In spite of the trend towards telework, some organisations including Google and Yahoo! announced that they were reducing telework opportunities because they feel that the best ideas emerge through social interaction (Ryan, 2013). IBM has joined these ranks by calling their employees back to the office (Kessler, 2017). However, although these organisations are moving in that direction, this pattern is not universal and there is evidence that in emerging markets such as India and China, frequency of telework is increasing and more common than in the USA (Alexov, 2017). Even though some US based multinationals have made such changes, new laws stipulating that Government agencies need to establish teleworking policies for their staff (Telework Enhancement Act, 2010), indicate that they expect it to be a practice popular enough to require legislation. In the UK, there are no specific laws governing telework, but new legislation means that all employees can request consideration for flexible working patterns (including telework) after 26 weeks of employment (Gov.UK 2017). Flexible working conditions are likely to become normalised for most employers in the UK over the next decade (Coyne, 2016). From an employee perspective, remote working is prized amongst the most valuable of work benefits, even more than health and retirement benefits (Stack Overflow, 2017) and 1.8 million people in the UK would like to telework from home if they had the opportunity to do so (ONS, 2015). So as telework influences so many different people and organisations, this study will aim to recruit a diverse group of teleworkers to reflect the wide variation in teleworkers that currently exist.

2.2.3 The Stakeholders of Telework

So, as can be seen from the previous section, telework is growing in popularity and importance and it has many stakeholders in the current economic and social climate. It may be a viable option for many organisations to make savings and fewer people redundant (Raiborn & Butler, 2009). Similarly, it can save money on rising transport costs (Hardill & Green, 2003) during a time of austerity and stagnant wages. As more working people have caring commitments along with their work (Carers UK, 2014), it provides a great degree of flexibility for people to balance these work-nonwork commitments and for people to manage

their specific health and disability issues that may not be possible working in other contexts (Baker et al., 2006). It may provide solutions over living arrangements for people who are unable to move for work due to house prices, or being unable to sell their homes and for dual career couples it may provide solutions to their geographical workplace differences. Many people are looking for work further afield and commuting longer distances (ONS, 2014c) and telework facilitates opportunities to work long distances away from home out of choice or necessity (Hardill & Green, 2003). So, there are many reasons why telework can provide some answers to some of the difficulties that the current economic climate brings and it is worth further research into this context, to explore how people can best work within it.

2.2.4 The Advantages and Disadvantages of Telework

The following three sections will assess some of the advantages and disadvantages of telework found in the literature from the societal, organisational and individual levels[1]. However, although these advantages and disadvantages have been widely explored (as the literature below will show), whether or not something is an advantage may depend upon the individual or groups involved. What may feel like an advantage to an individual may not be seen that way to an organisation or vice versa.

2.2.4.1 Societal

Teleworking may result in fewer cars on the road, thereby reducing carbon emissions, air pollution and environmental damage which is a potential advantage for the whole of society (Kitou & Horvath, 2008). Although it does have these environmental benefits, the picture is more complex and it may increase other forms of negative environmental behaviours such as increased use of electricity and food consumption (Workshifting, 2010 and Hynes & Rau, 2014). Teleworking facilitates continuity through the ability for some people to keep working during emergencies or severe weather conditions where they would otherwise not be able to

[1] The coverage of this section into societal, organisational and individual levels is based on Baruch (2000) and Baruch (2001a), two early papers that discuss the potential advantages and disadvantages of telework prior to significant empirical research being carried out. This part of the literature review will address the advantages and disadvantages from these three perspectives, but from empirical research that has added to our understanding of telework. These three levels give good coverage of different perspectives and issues related to this topic.

(Green, 2014). It opens work opportunities for people that are unable to work in traditional offices due to disability, although consideration of potential isolation of these groups is important (Baker et al., 2006 and Moon et al., 2014). Alternately, one theorised disadvantage of telework is its detachment and the creation of an 'autistic society' (Baruch, 2001b), where working with little face-to-face contact may socially de-skill teleworkers, however, this is a theory and there would need to be very large numbers of teleworkers for it to have such a negative and significant impact on society.

2.2.4.2 Organisational

Studies have shown that there are advantages and disadvantages of telework for organisations and these will now be considered. In the long term, telework has been found to lower overheads for organisations, such as not needing to rent office space (de Castella, 2011). Studies have shown telework to be linked to lower absenteeism and higher productivity (Harpaz, 2002), higher staff motivation, increased job retention and higher perceived job performance (Hill, Ferris & Martinson, 2003) and that teleworkers can work harder at home to prove that they are being productive (Halford, 2005). Organisations also have a larger and more diverse pool from which to recruit talent, unhampered by physical location (Global Workplace Analytics, 2015, Di Martino & Wirth, 1990 and Kurland & Bailey, 1999). Managers of teleworkers need to work differently than they would with office-based workers, measuring performance by results, not physical presence (Chen & Nath, 2008). However, from an organisational perspective, setting up telework has outlay costs which can be expensive (Wheatley, Hardill & Green, 2008), the organisation has less control over workers as they are less physically present (Raiborn & Butler, 2009) and there can be a loss of camaraderie or team spirit (Golden, 2007). Some organisations feel that their staff have fewer opportunities for creative collaboration with their colleagues which might be stifling of ingenuity in the workplace (Ryan, 2013) whereas other organisations continue to allow teleworking and do not regard this as a significant problem (Alexov, 2017). So from an organisational perspective there are many advantages and disadvantages, but this is also not clear cut because varying organisations may perceive these differently and how often these happen could vary across organisations too.

2.2.4.3 Individual

There are several reported advantages and disadvantages to teleworking for individuals and these will now be explored. Firstly, telework can save travel time and cut transport costs (Harpaz, 2002). Work-related travel of all varieties can be stressful for some individuals (Wheatley et al., 2008) and the avoidance of commuting that telework brings can reduce exposure to this stressor. A study by Morganson et al., (2010) found that home-based teleworking was related to higher job satisfaction and autonomy in comparison to office-based workers. Some teleworkers also report deeper levels of concentration while working from home than when working from the office (Halford, 2005 and Biron & Van Veldhoven, 2016), so when there is a need for intense focus, teleworking can support this. However, teleworking can have some negative outcomes for individuals, including loneliness, isolation and presenteeism; where teleworkers continue working at home even when they are ill and this could have long term health consequences (Mann & Holdsworth, 2003). Increased exposure to home-based stressors (Weinert, Maier & Laumer, 2015), perceived lack of career progression opportunities (Chen & Nath, 2008) and lack of support (Harpaz, 2002) are other disadvantages found in the literature.

The advantages and disadvantages of telework are varied and sometimes these overlap between stakeholders, for example the employment opportunities for disabled people (Baker et al., 2006 and Moon et al., 2014) benefit wider society and individuals too, so they are not always easily categorised into one group or another. Similarly, some factors may be an advantage for one group, but a disadvantage for another, such as presenteeism (Mann & Holdsworth, 2003) which could be perceived as a short-term benefit for an organisation or employer, but might be detrimental to the individual employee. It is also the case that sometimes the gains achieved by telework in one area tend to result in losses in another (Morganson et al., 2010). An example of this is the saving in transport costs which may then be replaced by spending more on home to accommodate working within it (Kitou & Horvath, 2008).

As telework is very different from a traditional office environment, it brings with it many unique challenges. One of its main strengths, its flexibility, means that teleworkers can work at any time with the right technology (Kurland & Bailey, 1999). However, it is likely not this

simple, because advanced planning before starting work, such as organising which media and technology to use and organising the available space is necessary (Perry, O'Hara, Sellen, Brown & Harper, 2001). Hislop and Axtell (2009) explore this in a study of multi-location workers comparing four locations: home, client office, office base and car. The employees actively constructed their work environment and spent effort and energy to create this outside of the traditional office. Equipment and technology takes time to set up, which is not required in an office base where these are already in situ. Specifically, a space to perform the required work and access to appropriate equipment is a necessity for home-based teleworkers. So, what may be an advantage, also brings with it the spending of effort and energy and whether or not these are advantageous may also depend upon the individual teleworker and their own resources.

Many studies have taken place that assess the implications of telework and whether it is beneficial for work-life balance, yielding mixed results. Studies have found that teleworking enabled individuals to synchronise their work and non-work schedules, to achieve better work-life balance (Maruyama, Hopkinson & James, 2009) and that it can particularly helpful in facilitating this balance for working mothers (Wheatley, 2012). Other studies have shown that this very flexibility can contribute toward boundary blurring between the work and non-work domains, which can increase work-life conflict (Tietze, Musson & Scurry, 2009, Maruyama et al., 2009 and Tietze & Musson, 2005). Overall, these studies have shown mixed findings and that in some regards home-based telework can make it easier to juggle commitments in both spheres, but at the same time can result in boundary blurring resulting in negative outcomes such as work-life conflict. Table One below provides a summary of the advantages and disadvantages discussed in the literature review, to provide a general overview.

Table 1: The Advantages and Disadvantages of Teleworking

Societal	**Organisational**	**Individual**
Advantages		
Reduced C02 emissions (Kitou & Horvath, 2008)	Recruit from a wider pool (Di Martino & Wirth, 1990, Kurland & Bailey, 1999 and Global Workplace Analytics, 2015)	Increased flexibility Global Workplace Analytics (2015)
Less traffic congestion due to fewer cars on the road (possible)	Lower overhead costs (Global Workplace Analytics, 2015)	Increased job satisfaction (Morganson et al., 2010)
Fewer traffic accidents due to fewer cars on the road (possible)	Save office space and costs (de Castella, 2011 and Global Workplace Analytics, 2015)	Saves commute time and travel related costs (Harpaz, 2002 and Kitou & Horvath, 2008)
Provides work opportunities for disabled people (Baker et al., 2006 and Moon et al., 2014)	Lower absenteeism (Harpaz, 2002)	Increased autonomy (Morganson et al., 2010)
Some people still able to work during emergency situations (Green, 2014)	Higher retention of staff, reduced intention to turnover (Hill et al., 2003)	Deeper levels of concentration for some people (Halford, 2005 and Biron & Van Veldhoven, 2016)
	Increased productivity and performance (Harpaz, 2002 and Hill et al., 2003)	Useful for supporting work-life balance (Maruyama, Hopkinson & James, 2009)
	Increased employee motivation (Hill et al., 2003)	Helpful for working mothers to balance work and non-work responsibilities (Wheatley, 2012)
Disadvantages		
Detached workforce (theorised by Baruch, 2001b)	Initial set up costs may be expensive (Wheatley, Hardill & Green, 2008)	Isolation (Mann & Holdsworth, 2003).
Increased consumption of electricity and food (Workshifting, 2010 and Hynes & Rau, 2014)	Management style needs to be performance based, not 'being seen' (Chen & Nath, 2008).	Increased exposure to home-based stressors (Weinert et al., 2015)
	Fewer opportunities for creative collaboration	Increased home-based spending (Kitou & Horvath, 2008)

	between colleagues (Ryan, 2013)	
	Less control over teleworkers (Raiborn & Butler, 2009)	Less perceived support from colleagues and managers (Harpaz, 2002)
	Loss of camaraderie in the workplace (Golden, 2007)	Fewer perceived opportunities for career progression (Chen & Nath, 2008)
		Presenteeism/working while ill (Mann & Holdsworth, 2003)
		Can create boundary blurring and work-life conflict (Tietze et al., 2009).

So, Table One above provided a general overview of the main advantages and disadvantages found in the literature on teleworking. However, these relationships are complex and not clear cut, but dependent on the perspective of the stakeholder. These studies have shown that there are many perceived advantages and disadvantages, but it is also often the case that gains in one sphere can result in losses in another (Morganson et al., 2010). So, whether teleworking is perceived to be beneficial, is largely about the perception, needs and resources of the individual teleworker or organisation.

2.2.5 Home-Based Telework Conclusions

So, this introductory section on telework has shown that along with other new ways of working, it is growing in popularity and it is estimated that many more people will be doing this kind of flexible work in future. Empirical studies have shown a range of differing advantages and disadvantages, although these are often overlapping and dependent on the perceptions of stakeholders involved. Although, home-based telework can provide a great deal of flexibility, it has also been linked to boundary blurring between the work and non-work spheres, which can be problematic when it comes to switching off after work. However, as the teleworking environment is so unique, its benefits very subjective and the nature of its boundaries debated, it is one that is interesting to explore further. This study will aim to explore the nature of home-based telework and its boundaries and in particular how individuals might manage these under such circumstances. The next section will now explore

in more depth, the nature of the boundary between work and non-work and how it might be managed in different ways.

2.3 Work/Nonwork Boundary

This section will start by exploring boundary theory which this study is based upon (Section 2.3.1) and its relationship to the spheres of work and non-work and how this differs to concepts of 'work-life balance'. The concept of 'styles' and the different ways that people might manage their boundaries according to their own individual preferences will then be explored (Section 2.3.2). This is particularly important in informing this research, which aims to explore how individual preferences might influence boundary management behaviours. Then some of the common criticisms of the available literature in this field are addressed (Section 2.3.3). The importance of research into work-nonwork issues for organisations is then discussed (Section 2.3.4), to show that boundary management preferences of employees have real life outcomes and consequences for themselves and the organisations that they work for. The relationship of the boundary in relation to remote working is then explored (Section 2.3.5) and it will be shown that the boundary in a telework context is unique and complex due to the natural blurring of the physical space of what is both 'home' and 'work'. Section 2.3.6 will then conclude that teleworking presents an environment within which personal agency is of importance and that there is an emphasis on the individual to shape their own context.

2.3.1 Work/Nonwork Boundary Theory

Work-nonwork boundary is a very different concept from work-life balance which has been defined as:

> *'…the individual perception that work and non-work activities are compatible and promote growth in accordance with an individual's current life priorities'* (Kalliath & Brough, 2008).

The work-life balance concept has been criticised for assuming that an equal balance between work and non-work is achievable and these 'detached spheres' should be kept separate because work represents demands and depleted energy, while non-work represents caring

responsibilities and personal fulfilment (Warhurst, Eikhof & Haunschild, 2008). This idea puts the two spheres at odds with each other and even the image of a pair of scales which are often used to define work-life balance in workplaces, could be seen as oppositional in nature (Kossek & Lautsch, 2008). An equal distribution between spheres may not be ideal for everyone because different people want different things when it comes to work and non-work and not everyone may want an exact equal balance (Lowry & Moskos, 2008). Some people may wish to invest more into either their personal or work lives and less into the other. Kalliath and Brough's (2008) definition acknowledges that 'current life priorities' are important, indicating that the way that people distribute their energy into work and non-work may also be fluid and change over time based on personal circumstances.

So the concept of work-life balance can be problematic for the reasons stated, but another way to assess work and non-work is through border theory, which purports that people cross the borders between work and non-work every day and that the demarcation line between them is actively constructed and shaped by individuals and other people in either domain (Clark, 2000). In border theory, the demarcation line can be physical, temporal and psychological. It is possible for the border to be crossed in any of these three ways, either physically via the space, temporally through using time, or psychologically through communications, behaviours and thoughts (Den Nagy, 2014). This concept acknowledges the importance of all three ways that the boundary between work and non-work can be crossed giving it great flexibility for use in studies on boundary management.

Nippert-Eng (1996) suggests that segmentation and integration are two dominant ways that people use to manage their boundary between work and non-work in her boundary theory. Segmenting is when an individual prefers complete separation between work and their personal life and a distinct and solid boundary between the two. Integration is when people prefer a more permeable and flexible boundary between their work and home life. As with any boundary, the work/nonwork boundary can be permeable and movable or it could be rigid and fixed, it is dynamic and can change over time. It is not something to aim at such as an ideal of perfect balance, but rather something which is actively managed (de Man, de Bruijn & Groenveld, 2008). Boundary and border theories acknowledge that people have different preferences in the ways that they manage their boundaries rather than a single goal for everyone. These theories both emphasise the importance of personal shaping of the

boundary (Nippert-Eng, 1996 and Clark, 2000) making them a suitable choice with which to base this study, which assumes that people actively shape their own boundaries. This study will also collect data from a wide range of people who may all have different ideals about the ways in which they wish to manage work and non-work and these being flexible and less value-laden offer a good basis to explore a diverse sample.

Within boundary theory segmentation and integration are at opposite ends of the boundary management continuum with segmentation at the positive end and integration at the negative (Piszczek, 2017). However, defining these as either negative or positive may not be helpful, because neither is innately negative or positive in terms of their effects on the individual, but rather they have different individual effects (Kossek & Lautsch, 2008). Individuals interpret their relationship to the boundary and although integration may be experienced as negative by one person it may be interpreted differently by another (Montgomery et al., 2009). Similarly, several studies (Cohen et al., 2009, Golden & Geisler, 2007, Hislop & Axtell, 2011) have challenged the simplicity of this segmentor-integrator concept and that there may be other preferences as well as segmenting or integrating. Preferences are fluid and changing according to circumstances as people construct their boundaries according to what is important to them at a given time and there are varying degrees of segmentation. Study Two in particular will explore this phenomenon because the participants will be selected based upon their degree of preference for segmentation and integration, which will be established based upon the survey data of Study One. This acknowledges the varying degrees of segmentation and integration preferences, rather than treating the topic as binary, facilitating analysis of the similarities and differences between participants, with varying degrees of preference. The next section will assess how the concept of boundary management 'styles' has enabled a more nuanced exploration of individual preferences toward the work/nonwork boundary.

2.3.2 Boundary Management 'Styles'

Although the integration-segmentation divide may be dichotomised, many recent studies have focussed on exploring behaviours of categorised segmentors and integrators (Piszczek, 2017 and Derks et al., 2016) so it is still very popularly used. Other theories of boundary management preferences also focus on the main themes of segmentation and integration at

their core, albeit in a way that considers a wider range of individual preferences. One such model is that of Kossek et al. (2012) which maintains that there is a continuum of boundary management behaviours from segmentation to integration, but these can also be transferred into categories which can enable more simply an exploration of typical behaviours at different points across the spectrum. So it is possible to use categorical and continuous data when addressing this issue and it can be useful to do so. Kossek's model claims that there are six overarching boundary management styles. The basis of these boundary management styles are: (1) interruption behaviours between work-nonwork and nonwork-work, (2) the identity centrality of work and non-work roles and (3) perceived boundary control. Individuals are categorised based on the way that they score on a survey in these three domains and then placed into one of six categories based on those scores. A description of the six styles are as follows:

1. ***Work warriors***: People in this group would likely experience a high frequency of work-nonwork interruptions, but being very focussed on prioritising work, they would allow for few interruptions from non-work sources during work time. Their control over the boundary may be low and so they may feel little self-efficacy in stopping themselves from focussing heavily on work and allowing its interruptions into the non-work sphere.

2. ***Overwhelmed reactors***: People in this group exhibit highly integrated behaviours because they prioritise both spheres of work and non-work more or less equally. They are likely to experience a high frequency of interruptions in both directions. However, as they do not feel that they have much control over their boundary, they may feel that they are merely reacting to demands from one sphere or the other and be overwhelmed by this need to react.

3. ***Family guardians***: People in this group may feel that they are in control over the boundary and find work and non-work spheres important to their identities. However, they will tend to experience more nonwork-work interruptions than vice versa, as they will prevent work interruptions from interfering in their non-work lives as much as possible.

4. ***Fusion lovers***: People in this group might be described as 'comfortable integrators' in that they feel in control over their boundaries, even though they experience a high degree of interruptions in both directions. They may identify with both spheres and enjoy an integrative lifestyle and do not seem to be upset by it, or experience it as negative.

5. ***Dividers***: People in this group may exhibit more segmenting preferences, in that they feel in control over their boundaries and they use this control to segment as much as possible and keep the spheres separate. They invest in both work and non-work equally, but prefer to minimise interruptions in both directions.

6. ***Non-work eclectics***: People in this group may centre their identities more around non-work and its activities and feel that they have high levels of control over their boundaries. They also display an integrative style with frequent interruptions in both directions, although people in this group may not feel negatively about this integration.

These six descriptions are based on each style in Kossek et al., (2012) and these types of groups can be one way to explore in-depth how such different styles might interact with other contextual factors and individual differences. People expressing these styles place different emphases and importance on work and non-work. The findings of this study suggest that people have preferences for various levels of segmentation or integration between work and non-work and their identity and perceived boundary control influences their boundary management. In other words, this 'person-centred' approach, acknowledges that individuals have different boundary management desires and needs that are more complex than segmentation or integration and that these are flexible according to individual needs (Kossek et al., 2012). Another difference in this model, is that it views boundary breaches as 'interruptions' which are any activities that create crossover between the two spheres of work and non-work. Interruptions are not always accidental occurrences or external disruptions over which the individual has no control, but can be any activity engaged in by the individual that causes crossover between spheres.

Kossek's model is partially the basis for this study, because it facilitates investigation into work-nonwork boundary practices that go beyond segmentation and integration and focuses

heavily on an individualised and 'person centred' approach. This model is one way that can ensure a wide range of individuals' boundary management styles can be captured from a broad sample. This model provides a robustly tested survey questionnaire that can be used to measure segmentation and integration preferences and is used in Study One to do that. It provides an established model with which to explore how different styles may interact with different contextual and individual differences. It is further used in Study Two as a means with which to select participants for interviews based on their boundary management styles, which were categorised based on scores from the Study One survey. The boundary management 'styles' that are used in Study Two are different from Kossek's six styles stated earlier in this section, as they were defined to focus more intently upon the specific degrees of segmenting and integrating behaviours of the interviewees. It provides an excellent format within which a full breadth of preferences can be explored. The utility of this model and its associated measure is also discussed in Chapter Four, Section 4.3.1.

The next section will focus upon some of the criticisms that have been launched against the available literature that explores work-nonwork issues.

2.3.3 Criticisms of the Work/Nonwork Boundary Literature

The body of work-nonwork literature has been criticised for focussing narrowly on certain groups, while failing to explore others (Hislop & Axtell, 2011, Shorthose, 2004 and Ransome, 2007) and for being value-laden in its assumptions of how people might perceive the work and non-work spheres (Lowry & Moskos, 2008 and Shorthose, 2004). The first criticism is that there is a deficiency of research into work-life issues effecting workers other than white collar, professional and managerial workers (Hislop & Axtell, 2011 and Shorthose, 2004). Further still, a critique of the literature conducted by Ransome (2007) found a predominant focus on dual-earner couples with young children (although they make up only 22% of the population) and very little into people from other types of households. So, there is an assumption of homogeneity within the literature, but this study will aim to investigate teleworkers from a wide range of backgrounds, demographics and circumstances. Utilising an internet-based survey as a data collection method and casting the recruitment net as widely as possible, means that the method facilitates a good chance of accessing a wide and varied sample (Sue

& Ritter, 2012). The aim of this study is to collect data from a diverse range of participants, rather than a narrow and focussed group.

The second criticism that work-life research can be value-laden is also mentioned by Ransome (2007) for their basis upon a gender division of labour model, wherein household tasks shared equally is perceived as an achievement of equality. He points out that not all people would fit into this model, or desire to do so. Similarly, work-life literature tends to presume that people work to achieve a sense of creativity and production through work, when some people may work purely for economic reasons (Shorthose, 2004). However, individuals have different work-life needs and expectations and some people may invest more of their identity into work or non-work than others (Lowry & Moskos, 2008). A key strength of Kossek's model (2012) and of this study, is that they do not assume that work and non-work are opposed or in an adversarial relationship or that participants will perceive their work as either a chore or a creative joy. It also does not presume that individuals will have certain ideals about the ways in which their personal lives are structured, but acknowledges that individuals will have their own perceptions and desires about how they wish to manage each sphere and the boundaries between them. Now that the criticisms of work-nonwork research have been discussed and it has been shown that this study aims to address these issues, the next section will consider why it is important to conduct research into work-nonwork preferences.

2.3.4 The Importance of the Work/Nonwork Boundary Research for Organisations

Organisations invest significant resources into developing work-life policies and these are important in attracting and recruiting employees (Beauregard & Henry, 2009). Rothbard's (Rothbard, Phillips & Dumas, 2005) study illustrates the importance of the congruence between organisational policies and employees' desires to segment or integrate. This showed that employees who desired segmentation were less committed to their organisation when it offered on-site childcare (an integrating policy) and more committed when it offered flexitime (a segmenting policy). The reverse was true for employees who desired integration, indicating that congruence between employee work-nonwork preferences and the values and policies offered by an organisation relate to organisational commitment. Similarly, organisations that pride themselves on being family friendly and respectful of the

work/nonwork boundary, may find these policies undermined through introducing smartphones for work (Orlikowski, 2007). So the expectations that organisations have of the smartphone use of their employees may conflict with their policies and ethos and so having a clear policy is important to prevent turnover. These studies show that investment into work-nonwork boundary knowledge is important for organisations when developing their policies for the wellbeing of the employee, but also for recruitment, retention and commitment of individuals to the organisation. Therefore studies into this topic area can contribute knowledge that may support organisations in their work-nonwork policies and also individuals to manage their boundaries in a way that suits them. This study aims to add to the knowledge in the work/nonwork boundary topic area, which may be potentially useful for organisations and individuals.

The next section will explore the specific relevance of the work/nonwork boundary in a home-based teleworking context and why this unique context brings with it specific boundary issues that traditional office workers might not experience. This is core to the overarching research question which specifically aims to explore the boundary management of home-based teleworkers.

2.3.5 Work/Nonwork Boundary and Remote Working

Discussion of work/nonwork boundary theory is especially pertinent to remote working contexts, especially that of home-based teleworkers, because they experience a different set of work/nonwork issues than people in traditional offices, whose work environment is physically separate from home. As home-based teleworkers live and work in the same physical space, there is more of a natural merging of the physical boundary between work and non-work (Kossek, Lautsch & Eaton, 2009). In this type of remote working context, the work environment is not automatically set up as it would be in an office and the individual is responsible for structuring it (Hislop & Axtell, 2009). Kreiner et al.'s (2009) study of Presbyterian Priests explores the way that individuals set up their environment and use 'work boundary tactics' to establish boundaries. Priests are not teleworkers, but they live in Church owned property very close to their Church, which merges the spatial boundary because even when at home, they are metres away from work and subject to parishioners calling. The Priests in this study used a range of methods to manage their boundaries and these were:

physical, behavioural, temporal and communicative. Table Two below gives some examples of the different strategies utilised within each category.

Table 2: Examples of Work/Nonwork Boundary Management Strategies

Boundary Management Approach	**Example of Boundary Management Strategies**
Physical	Building a fence or boundary between work and home to create a demarcation line Having a separate room for work Taking paraphernalia from one realm into the other Wearing different clothes in each realm
Behavioural	Use of technology such as caller ID to screen calls Asking someone else to screen calls Choosing not to respond to or check e-mails Choosing whether to keep phone switched on outside of work
Temporal	Taking time off such as a holiday Banking time from one realm into the other Taking time for breaks Sticking to set times for work and home life
Communication	Setting clear expectations about the boundary to others Discussion with others when boundary violations occur

(The table is based on the four boundary management approaches and examples of tactics as reported in Kreiner et al., 2009).

In this study, the Priests created the personal space that they lacked by taking physical action such as by erecting a fence, which was not naturally occurring due to living and working in extreme close proximity. Another interesting finding was that events considered boundary violations by some, were not by others and when a segmentor was forced to integrate and an integrator forced to segment, they were equally perceived as violations to the individual. So, this study suggests that personal preferences are of paramount importance in this type of context and that they influence the way that interruptions are interpreted, rather than the boundary interruptions themselves being a violation. This study is not in a home-based teleworking context, although it does have many similarities, it raises interesting points about the active role that teleworkers may need to play to shape their own boundaries. Study Two will explore how teleworkers boundary management preferences influence the shaping of these boundaries in a home-based teleworking context.

Mustafa and Gold's (2013) study does investigate the strategies that self-employed teleworkers use to manage their work/nonwork boundary. They found that an interconnection existed between the ability to maintain a physical and temporal boundary or that the two were dependent upon each other. An example of this is that if work paraphernalia were left out after working hours, the physical boundary was breached because the work objects were in non-work space. This tended to act as a cue to draw individuals back into work, so they spent some non-work time on work. Therefore the breaching of the physical boundary often encouraged a breaching of the temporal, so the two were interlinked. This study also found that demographics were not as important in the way that individuals managed these boundaries, but that their desires for segmentation were, suggesting that boundary management preferences may be of key importance in teleworkers boundary management choices. It highlights that the teleworkers were not passive in how they managed their boundaries and also that the segmentation-integration continuum was 'too static' to explain some of the differences in the way that individuals worked. This shows the need for a study that explores boundary management preferences beyond the segmentation-integration paradigm and how individuals with differing preferences might actively manage their boundaries and Study Two will address this.

2.3.6 Work/Nonwork Boundary and Telework Conclusions

This section has shown that remote working and in particular the home-based teleworking context brings with it specific boundary issues, such as the natural blurring of the boundary between work and non-work, because the individual is living and working in the same space. Teleworkers may engage in a range of strategies to manage their boundaries, as they are responsible for creating these boundaries with less input from the work sphere than would be typical in an office. These studies highlight the importance of personal agency and boundary management preferences in telework practices and Study Two in particular will address these issues to explore a wider range of boundary preferences than have been explored previously in this context. This section briefly assessed these teleworking issues, but Section 2.4 will explore the literature about mobile technology at work and how ICT use might influence the boundaries of teleworkers as well.

2.4 Mobile Technology at Work

This section will explore ICT's at work, the first part will discuss the role that mobile technology can play in blurring the work-nonwork boundary and how this is evolving over time due to the changing nature of ICT's themselves in Section 2.4.1 'Boundary Blurring, Telework and the Changing Nature of ICT's'. Section 2.4.2 'The Potential Effects of ICT's on Health and Wellbeing' which will show the importance of ICT's and the actual effects that ICT use can have on the wellbeing of individuals. As these two first sections will show that both boundary blurring and its effects are influenced by differences in the individuals that use them, Section 2.4.3 will discuss how ICT's can be used as a boundary management tool, not only as a device to blur the boundary, but that individuals exercise personal agency and use them to shape their own boundaries. The following Section 2.4.4 will take this a stage further by addressing the way that individuals express their own boundary management preferences for segmentation and integration by the way that they use their ICT's, particularly smartphones. Section 2.5.5 will balance out the discussion of the use of ICT's being so heavily influenced by individual differences, by assessing the literature on situational and external factors that are also known to influence the way that individuals use ICT's and how these factors influence the work-nonwork boundary. Overall Section 2.4 will show that a mixture of situational and individual differences and dispositional factors influence the relationship between ICT's and boundary management. A key part of the overarching research question asks whether personality traits influence this relationship and as traits are dispositional factors, the literature related to this issue could have been included in this section. However, there are few papers related to the effects of personality traits on ICT use and the work-nonwork boundary, especially the five-factor model traits. Study One will add to knowledge, by exploring this. The existing literature will be discussed in Section 2.5 after introducing the personality model used in this study. This will allow the opportunity to fully discuss the relevance of personality in this context, as it is a key part of the study and merits full exploration.

2.4.1 Boundary Blurring, Telework and the Changing Nature of ICT's

As already mentioned, technology is a key feature of telework and cannot take place without it (Golden, 2009). Mobile technology such as laptops, which facilitate access to the internet, email and Skype make it possible to access work while away from an office base (Matusik & Mickel, 2011). As the teleworking context is so dependent upon ICT's and also an environment where there is little supervision (Chen & Nath, 2008 and Raiborn & Butler, 2009) and a lot of independence in how people work (Kreiner et al., 2009 and Nansen, Arnold, Gibbs & Davis, 2010), it is likely that individual differences may be very influential in how people use their ICT's. This merits a study into the influences of individual differences on ICT use in this context. More recently, other types of smaller and lighter technology such as iPads, tablets and smartphones (Mackenzie, 2011) make it even easier to synchronise these devices for work and non-work use. Small, portable technology such as smartphones makes these modes of communication accessible through their different functions including: text, e-mail, phone calls, diary, alerts, apps, games, Skype and internet, twenty-four hours a day, seven days a week (Den Nagy, 2014). As the range of available hardware and software has grown so rapidly, there could be significant differences in the way that these different ICT's are used and their effects on the work-nonwork boundary.

Although research shows that smartphones, PDA's and mobile phones tend to blur the boundary between work and nonwork (MacCormick, Dery & Kolb, 2012, Mazmanian, Orlikowski & Yates, 2013, Richardson & Benbunan-Fich, 2011, Cavazotte, Heloisa Lemos & Villadsen, 2014, Chen & Nath, 2008, Derks & Bakker 2014 and Derks, van Duin, Tims & Bakker, 2015) there are fewer studies that investigate other ICT's. However, Chesley (2005) conducted a longitudinal study, which showed that computer use did not result in spillover from work-nonwork or nonwork-work, but an association between mobile telephone use and spillover was found in both directions, indicating that mobile telephones are more significant in boundary interruptions than computers. This study was conducted before smartphones, so refers to basic functioning mobile phones and the computers mentioned are likely to be desktop PC's considering that this was a longitudinal study published in 2005. As newer technology now exists, such as smartphones with more capability than mobile phones and

desktop PC's are in decline (Murphy, 2016 and Ofcom, 2015), this situation may now be different and warrants further exploration.

The use of mobile telephones may blur temporal boundaries between work and non-work and can be particularly intrusive, because people use them in a way that they would not use a landline, for example to send texts outside of work time when it is inappropriate to telephone (Prasopoulou et al., 2006). Similarly, Duxbury et al. (2014) discuss individuals who they call 'struggling segmentors' who want segmentation between work and non-work but struggle to achieve this because of work demands and ICT's which can allow access to work during non-work time. So for people with this preference, it can be a struggle to achieve segmentation because of the influence of ICT's on the work-nonwork boundary. Although smartphone use can blur the boundary, it is not inevitable that everybody feels pressured to keep their phone switched on after work (Hislop, 2012). Attitudes to technology and the lifestyle of individuals influence how people manipulate technology to fit with their environment (Cousins & Robey, 2005) and not everyone experiences difficulties switching between work and non-work (Chen & Nath, 2008). Research has shown that the mobile phone itself is neutral (Piszczek, 2017 and Duxbury et al., 2014) and as stated by Derks and Bakker (2010):

> *'If we keep in mind that both a computer and a smartphone have a switch-off button and that we are in control of the device and not the other way around, we can exploit the benefits of these new media, use them as resources, and be aware of their pitfalls.'*

So, the way that people use ICT's can be very different, they do not automatically create boundary blurring, but it is also the case that their use can change over time. Dery, Kolb and MacCormick (2014) conducted a qualitative study of smartphone use over two time points in 2006 and 2011, a period of time in which great changes to the functionality of smartphones occurred. Their study indicated that their participants' views toward the smartphone changed over time as they used it more and it became more of an ingrained part of their lives. In 2006 their participants perceived connecting via the phone as a duty to the organisation and disconnecting a way of setting a boundary and exerting personal control. By 2011 these perceptions had shifted to one of 'flow' and that the mobile device was something to be managed like a flow of water, which could be increased or decreased according to the needs of the individual, rather than switched off or on. This shows that over time and with more

regular use, perceptions of the smartphone changed as the devices themselves evolved and became more sophisticated. Since 2011, these devices have become even more advanced and their additional functionality is something that individuals will need to adapt to and incorporate into their usage of these devices. Further studies that explore these evolving perceptions of smartphones with their current functionality, would add to this body of literature to explore how individuals perceive and use these now commonly used everyday devices.

Although individual's perceptions of their smartphones may change, there is also evidence that individuals interpret their own smartphone use in different ways. A qualitative study of the smartphone use of professionals in a law firm in Brazil (Cavazotte et al., 2014) found that smartphone use for work during non-work time became a source of conflict and although significant others in their lives disliked the way that the smartphone was used, the users did not respond with practical alternatives. The authors found that the participants in their study used three dominant narratives with which to justify their excessive smartphone use. These were: 1) that individuals had autonomy over their smartphone use and controlled it even though it intruded negatively. 2) The encroachment of the phone was played down or joked about to maintain a distance from it. 3) The intensive use of the phone was justified as being the way of the world and just the way that it is now. Mazmanian et al. (2013) conducted a study of knowledge professionals working in the banking and finance sector and the implications of these devices on the autonomy of the individuals using them. The study found that individuals rationalised their excessive smartphone use by associating it with personality traits that they deemed positive. They claimed that their 'A type personalities' drove them to stay connected and it was a sign of their motivation and strong desire to achieve. The smartphone was almost treated as a piece of paraphernalia with which to express competitiveness and success. Although these justifications were made for using the smartphones in this way, overall the study concluded that using them in this way resulted in increased stress, less 'downtime' and greater integration between the work and non-work spheres. These two studies show that there are also differences in the way that individuals interpret their own smartphone use and the impact that it has upon their lives and this in turn can influence how they respond to it. However, both of these studies focus on excessive smartphone use on people in very demanding and competitive jobs, so being highly

connected may be more of an expectation and way to succeed than in less demanding occupations. This study will focus more widely on participants in a wide range of occupational fields and roles, where these demands may be more dispersed and individuals may use a wider range of repertoires to explain their smartphone behaviours.

So, as these studies show that people use ICT's differently and they do not seem to effect everybody in the same way, there may be wide variations in how people use these different technologies and their subsequent influence on individuals. The use of a flexible method through a qualitative study (such as in Study Two) would allow an in-depth investigation to gain insight into these varying behaviours and strategies that individuals use to manage their ICT's, especially into a teleworking context where ICT's are of paramount importance. The next section will assess the effects that smartphone use can have on individual wellbeing.

2.4.2 The Potential Effects of ICT's on Health and Wellbeing

Derks et al. (2014) conducted an experiment exploring the relationships between smartphone users, non-smartphone users and work-home interference. The study found that smartphone use was not related to work-home interference in comparison to the control group. However, in comparison to the control group, smartphone users found it more difficult to engage in psychological detachment and relaxation than non-smartphone users and to switch off from work. In a similar study, Derks and Bakker (2014) looked at the recovery from work of remote working smartphone users through a) psychological detachment from work and b) relaxation, (a state of positive, low activation). Over time, lack of detachment and relaxation can lead to psychological burnout. They found that intensive smartphone use was positively related to work-home interruptions, so it was not merely using a smartphone that led to work-home interruptions, but using one intensively. However, the relationship was not so simple, because intensive smartphone users who engaged in some form of psychological detachment experienced less work-home interference than those who did not. This shows that although smartphones can pull people back into the work realm, individuals experience this differently and strategies such as taking breaks or detaching in some way might mitigate this. Taken together these studies suggest that it may not be purely using a smartphone after hours that increases work-nonwork interruptions, but using it heavily which may also prevent detaching and recovering from work.

Although these studies suggest that heavy smartphone use may be linked to emotional exhaustion, this relationship is also complex because Ragsdale and Hoover's (2016) study showed that attachment to smartphones moderated the relationship between work related smartphone use and emotional exhaustion. These findings suggest that attachment may buffer the negative effects of emotional exhaustion and work-family conflict, so the relationship that the individual has to their phone is also influential in the potential effects that it can have upon them. These studies highlight the complexity of the relationships and importance of the strategies that individuals use to manage their ICT's as these different strategies can mitigate the potential negative effects of smartphone use. Considering the importance of these individual strategies, Study Two will explore the nature of the different strategies that individuals use. This section has shown that when ICT's are used to blur the boundary it can have differential effects and this leads in to the next section, which assesses how ICT's can be actively used as tools to shape boundaries, not just items that affect them.

2.4.3 ICT's as a Boundary Management 'Tool'

As people actively shape their work-nonwork boundary through boundary management tactics, as discussed in Kreiner et al. (2009), mobile technology can also be a tool utilised to shape the boundary. The theme of control is important in Golden and Geisler's (2007) study of personal digital assistants (PDA's). PDA's were handheld, mobile PC's often used in the 2000's that had most of the functions that a PC had, but the benefit of being extremely mobile. PDA's could be wirelessly connected to the internet making them ideal for use for work and non-work purposes. Golden and Geisler (2007) found that individuals used their PDA's to exercise control over the boundary with segmenting strategies such as setting time limits and avoiding using it altogether while at home. PDA's integrated the domains through allowing alternation between the domains while being in the same space. Overall, individuals used four repertoires with which to manage their phones. The first was 'Containing work' which was used to segregate the work and personal by controlling and limiting how and when the PDA was used. The second was 'Integrating the self' which involved using the PDA in a way which joined work and non-work such that it was perceived as a 'constant companion' by some, it was possible to be present in both spheres, dissolving the boundary to 'enhance life' by enabling social bonding with others. The third was 'Transitioning work' which involved

engaging with work via the PDA outside of its normal temporal and spatial boundaries, such as while travelling or at home, but with the intention of creating a better work-life balance. Fourthly, 'Protecting the private' involved using the PDA to protect the non-work sphere by using the calendar to ensure that non-work activities are scheduled in and also by keeping the PDA private, the contents of which were not shared with others as much as possible. This study shows that a variety of repertoires to actively shape the boundary, through PDA use occurred and that personal preferences influenced their use rather than them being merely a tool that created boundary blurring.

However, there has been rapid development in these technologies and since the early 2010's these PDA's have been largely replaced by smartphones, which have much more capability and functions than a PDA and they can connect to the internet much more quickly (Smith & Wempen, 2012). Smartphones are also now very popular and commonly used meaning that they have the potential to effect a large proportion of the population (Ofcom, 2015). This being the case they could be potentially more complex as a resource for boundary management than PDA's, meriting further research. Golden and Geisler (2007) also mention that in their study, PDA's were not often used for checking emails through internet access, which is very different from the way that smartphones are used today. So there is an opening for a study that addresses similar issues in more current technology.

Lal and Dwivedi (2010) conducted a qualitative study to explore whether home-based teleworkers did stay connected to work at any time through their mobile telephones. They found that home workers did try to create separation between home and work through using spatial and temporal segmenting strategies, such as working in a separate area and having a cut-off point when they stopped working. However, in spite of this, they were still available outside of working hours via their mobile phones such as in public spaces when shopping and during break times. This meant that even if individuals had a preference for segmentation, the mobile phone still became a source of integration between the spheres. Nevertheless, some strategies, such as physically distancing from the phone, or screening calls to decide whether to answer were used to manage the phone by some participants. So, the mobile phone was used in a way that facilitated integration between the spheres of work and non-work, but some participants also took steps to control the degree of integration to reduce the amount of time that they spent connected. This shows that the mobile phones were not

necessarily handled passively, but that some strategies were used to create segmentation by some people but not others. This study will explore some of these ideas further by investigating whether different boundary management preferences may be at play in the way that people use the functionality of their ICT's and why some people might use these segmenting strategies while others do not. Lal and Dwivedi's study showed the influences that smartphones can have on segmentation and integration preferences and the next section will go further to look at the effects that segmentation and integration preferences have on smartphone use behaviours.

2.4.4 Segmenting and Integrating Behaviours and Smartphones

The boundary management preferences of individuals, largely defined by segmentation and integration are discussed above in Section 2.3.1. Recent studies explore the relationship between these preferences and technology use, particularly that of smartphones and their effects on boundary management. A study by Derks et al. (2016) found that the smartphone played a different role in work-life conflict for integrators and segmentors. Integrators experienced less work-family conflict by their smartphone use indicating that the smartphone facilitates their integration preference and they were exploiting the flexibility of that technology. Integrators may be able to manage their work load better by using their smartphones outside of working time and do not necessarily experience this as negative or problematic. Alternately, they also found that segmentors may choose not to use their smartphones after hours for work purposes, to achieve segmentation by not interacting with the phone at all.

Piszczek (2017) had similar findings in that there were differences in the way that integrators and segmentors used technology, with segmentors engaging in less work-related technology use out of hours than integrators. However, both segmentors and integrators engaged in more work-related technology use out of hours, when expected to do so by the company that they worked for, supporting earlier findings (Derks et al., 2015) and the significance of hierarchical relationships in pressuring people to use smartphones, thereby increasing work-nonwork interruptions. The effects of this additional pressure from the company was not equal though and when segmentors used their technology more because of these

expectations, they suffered emotional exhaustion more than their integrating counterparts, who felt that they had more control over the boundary.

Tennakoon, da Silveira and Taras (2013) found that people preferring segmentation limited their phone use for work on nonwork days, but they did not limit it for non-work use on work days, showing that the phone was utilised differently for different spheres. The authors speculate that this finding could be because segmentors may segment as a means with which to prioritise non-work. Secondly, segmentation and work demands were negatively related, suggesting that segmentors may not need to use their smartphones as much due to having fewer demands to respond to. However, when assessing this study it should be borne in mind that work demands are something which may be perceived rather than actual. Similarly, Richardson and Benbunan-Fich (2011) found that preferences for segmentation and integration could be displayed readily through smartphone use, because people with integration preferences used them more outside of work time, but people with segmentation preferences displayed their preference by switching the phone off altogether. Preference for integration was related to smartphone work-connected behaviours out of hours, more so than for laptops. So individual preferences for integration and segmentation may be displayed more readily through a smartphone than a laptop. However, this study focusses on a narrow sample who were working in a metropolitan area and likely commuted to and from work. This could influence the findings of this study because some of the technology being used for work could be used during the commute time. It is much easier to use a smartphone on a train or bus than a laptop. So, it is likely that the work arrangement may influence these results. The way that these devices are used in a teleworking context may be very different because commute time would be less of an issue for this group of people.

Qualitative studies have also explored these relationships and Duxbury et al. (2014) considered why mobile technology has changed the work-nonwork boundary for some people but not others. Their findings suggested that individual's boundary management style and relationship to their technology could be categorised in three ways. The first category was the *'integrators'* who were characterised by using technology effectively to join work and non-work and the technology was utilised in a way that they felt improved their boundary. People in this group felt responsible for how they managed the technology themselves. The second category was *'successful segmentors'* who also took personal responsibility for how

they used their phones and they saw the smartphone as an advantage for work efficiency, but of little value to enhancing their non-work sphere. The third category was the '*struggling segmentors'* and people in this category felt under more pressure since getting a smartphone, found it difficult to compartmentalise work and non-work and experienced more work-family conflict since using smartphones. They used situational and dispositional reasons for their relationship to their phone, such as they felt unable to control their use of the phone and they felt that their employers were not doing enough to help them manage it. The authors conclude that individuals construct their views of technology and that over time, successful boundary management relates to dispositional attributions. Those less happy with their boundary management tend to use situational attributions, such as blaming the organisation for expecting them to be permanently available by phone. Interestingly, the study also found that mobile technology resulted in work-nonwork boundary permeability more than nonwork-work and its impact on the work-nonwork boundary was far greater.

Taken together, these studies show that the relationship between work-nonwork boundary preference (segmentation and integration) and the effects of smartphones on the work-nonwork boundary are complex and there is no simple or straightforward relationship. These relationships are something experienced differently by different people and smartphones have not automatically brought with them the negative impact on work-nonwork boundary management as first thought (Prasopoulou et al., 2006). Integrators seem to reap the benefits of smartphones and achieve more work efficiency through their use and do not appear phased by their potential negative effects. On the other hand, people preferring segmentation may either avoid their use after hours, or if pressured by work to use them tend to suffer more significant negative consequences. However, these studies have focussed primarily on segmentation and integration preferences and as already said; boundary preferences may be more complex than this (Cohen et al., 2009, Golden & Geisler, 2007, Hislop & Axtell, 2011). As the ways that segmentation and integration play out are very complex, Study Two explores these relationships through a qualitative method to fully explore the diversity of this experience.

However, each of these studies focus on employees working in traditional office environments and so some of these benefits of smartphones for integrators might be due to these working conditions. Smartphones allow office workers to leave their physical

workspace, go home and then reconnect to work later in the evening, perhaps after they have spent time with their families. If it were not for mobile technology, they might spend more time working at the office to finish work off before going home (Derks et al., 2016). In a sense, the mobile technology allows these workers to transcend their physical office and spend more time with their families than they would otherwise. These benefits may not work in the same way for people who already work from home, as the mobile technology would not free them to go home. A study by Hislop et al. (2015) found that mobile phones 'liberated' some home workers by enabling them to leave the home during work time, but still be available for work. This indicates that they are similarly 'liberated' from the workplace by the mobile phone, for home workers from the home, for office workers from the office. Nevertheless, the benefits of the liberation for those that it liberates seem to come during work time for home workers and after work time for office workers. This shows that there may be potential differences in the benefits of mobile technology in different environments and Study Two will address in depth how these ICT's are used in a home-based context.

2.4.5 Situational Factors Influencing ICT Use

The previous sections have discussed the ways in which individual differences and personal agency play a role in how people use ICT's and how these differences can result in different outcomes for the work/nonwork boundary. This section will now turn to situational or external factors that have also been found to influence ICT use and boundary management. These external factors are other factors such as work demands and pressures external to the individual that are not necessarily dispositional. Although there is likely to be interaction between situational and dispositional factors, this section focusses on the situational because they are likely to be important as well as the individual differences that were considered in the previous sections.

Derks et al. (2015) assessed the relationships between daily smartphone use in the evening and work-home interference along with colleague and supervisor influence on availability for work outside of typical hours. Perhaps surprisingly, colleagues did not influence levels of smartphone usage, but employees who experienced pressure from their supervisor to respond to work-related communications during evening time did have more work-nonwork interruptions. This shows that people may feel under pressure from their supervisors to use

their smartphones outside of work, although the power of social norms experienced through colleague behaviour did not wield the same influence. Situational factors such as the nature of the work undertaken and management are significant, for example; when employees have fixed hours and their managers have no need to contact them after work, it is less likely that they will use mobile phones out of hours (Hislop & Axtell, 2011).

Tennakoon et al., (2013) explored the factors influencing smartphone usage on the domains of work and non-work. They found that work demands were related to phone use for work purposes on non-work days, but not significant on work days. This suggests that work demands may create pressure for some people to use ICT's during non-work time and this could be one driver behind why some people use these devices on non-work days. Similarly, the number of sources of pressure to use smartphones influence whether people choose to use them outside of work time or not (Matusik & Mickel, 2011). When ICT's have been distributed to employees by the organisation that they work for, individuals are more likely to use them out of hours than if purchased by the employee themselves (Richardson & Benbunan-Fich, 2011). So these studies show that some demands stemming from the work sphere itself can be influential in creating pressure to use ICT's outside of work time for work purposes.

Wajcman and Rose (2011) found that there were occupational differences in internet use as managers and professionals used it more than other occupational groups. However, the internet was used for work purposes much more on weekdays than weekends, but personal internet use was similar on weekday and weekends, which the authors argue means that work related internet use does not extend work time into non-work. So, use of the internet helped to reduce work-nonwork interruptions rather than increase them and this suggests that using the internet is not interpreted by these individuals as an extension of work. In their study the internet was used for non-work during work time more than the other way, but this was not interpreted as problematic or interfering with work. A study by Wajcman, Bittman and Brown (2008) of the use of mobile phones for work and other purposes found that job characteristics such as the number of hours worked were related to work-nonwork spillover more than mobile phone usage. Wajcman et al.'s study challenges the idea that the mobile phone is merely a device that serves to extend work; the authors found that it was used as a way to connect with family and allows a level of intimacy that would not be possible due to

geographical distance between family members. The households in this study used their mobile phones to coordinate with each other in spite of distance. Both of these studies challenge the idea that smartphones in particular can be a problematic source of work-based interruption, or that the interruptions that they do cause are challenging. However, both of these studies are of the mobile phone use of entire households, not just working individuals. As some people in the households were not working, they would not use their devices for work purposes. Studies focusing on working adults might reveal different findings, especially considering that smartphones have evolved since 2007 when the data in Wajcman et al.'s study was collected.

Table Three below summarises the literature explored in this review related to technology at work and the influence of ICT's on the work/nonwork boundary.

Table 3: Studies of Technology in Management of the Work/Nonwork Boundary

Author and Date	**Country of Origin**	**Workplace Environment**	**Work Role**	**Sample Information**	**Type of Technology Specified**
Non-telework					
Prasopoulou et al. (2006)	Greece	Not specified	Management and professional roles	15 log files of tracked mobile phone usage and debriefing interviews	Mobile telephones
Boswell & Olson-Buchanan (2007)	USA	Set working hours of 8-5 for a range of job duties	Non-Academic University staff and their significant others	360 employees and 35 'significant others' in a survey study	Mobile telephones, e-mail, voice mail, PDA's and pagers
Chen and Nath (2008)	USA	Diverse organisations such as transport, manufacturing, financial services and insurance	Chief Information Officers	10 interviews	Non-specific
Chesley (2005)	USA	Various across seven organisations	70% managerial or professional	1367 employees and their partners telephone interviewed	Mobile telephones and computers
Derks et al. (2015)	The Netherlands	Full time workers	Various professions	79 participants' diary questionnaires for 4 days over one week	Smartphones
Derks et al. (2016)	The Netherlands	Diverse work environments	Diverse work roles	71 participants' diary questionnaires for 4 days over one week	Smartphones
Ragsdale & Hoover (2016)	USA	Full time workers	Varied occupational backgrounds	313 participants in a survey study at two time points	Cell phones

Piszczek (2017)	USA	Various work environments	Alumni from a Human Resources MSc course	233 respondents from an online survey study	Electronic communications
Duxbury et al. (2014)	Canada	High pressured and target driven environment	Sales representatives in the pharmaceutical industry	25 interviews with Blackberry users and 9 spouses. Longitudinal with two time points using qualitative content analysis	Blackberry Smartphone
MacCormick et al. (2012)	Australia	Banking and Finance	Senior managers in a range of roles including HR, Sales and IT	21 semi-structured interviews and 2 focus groups	Blackberry
Mazmanian et al. (2013)	USA	Banking and legal services	Knowledge workers	48 interviews and 22 follow up interviews a few months later	Blackberry
Richardson & Benbunan-Fich (2011)	USA	Marketing and media organisation	Full time workers	139 surveys	Smartphones
Tennakoon et al. (2013)	Canada	A wide range of sectors	Managers and Professionals	425 online surveys	Blackberry
Wajcman et al. (2008)	Australia	A wide range of sectors	A wide range of work roles	1358 individuals from 845 households surveyed	Mobile phones
Cavazotte et al. (2014)	Brazil	Law firm, office based	A range of roles	42 interviews	Smartphones
Wajcman & Rose (2011)	Australia	A wide range of sectors	A wide range of roles	Online sample of 1904 individuals from 1434 households surveyed and 1255 from 950 diary completions.	Internet

				Offline sample of 280 surveys and 77 diaries	
Dery et al. (2014)	Australia	Financial services company	A range of roles	8 individuals interviewed at two time points 5 years apart	Blackberry and other Smartphones
Matusik & Mickel (2011)	USA	A wide range of sectors including banking and finance, retail and education.	A range of roles such as managers and lower level roles	54 interviews	Smartphones
Teleworker/Home/Partial telework/Mobile/Remote Working					
Cousins & Robey (2005)	USA	Nomadic working for over two years	Loan Officers	4 interviews	Mobile computing devices
Hislop & Axtell (2011)	UK	Mobile workers	Mobile Service Engineers	17 interviews with 13 engineers and 4 managers from 3 companies in South Yorkshire	Mobile telephones
Derks & Bakker (2014)	The Netherlands	Remote workers	Not specified but highly educated	69 participants' diary questionnaires for 5 days over one week	Smartphones
Derks et al. (2014)	The Netherlands	Remote workers from 22 organisations	Various but similar	80 participants' diary questionnaires for 6 days over two weeks. (Experiment between Smartphone and non-Smartphone, computer users)	Smartphones

Golden & Geisler (2007)	USA	Time split between home and workplace	Education, management and professional	42 telephone interviews	PDA's
Lal & Dwivedi (2010)	UK	Homeworkers	Not specified	25 interviews	Mobile telephones
Hislop et al. (2015)	UK	Self-employed homeworkers; part-time, full-time and half time	Administrative	14 interviews	ICT's
Nansen et al. (2010)	Australia	Telework from a range of sectors	Managerial/Professional and skilled work	4 case studies involving 3 visits each and a range of data sources including diaries, scrapbooks and photos	ICT's
Mustafa & Gold (2013)	France, UK and US	Teleworkers	Self-employed including copy editors, illustrators and translators	20 interviews	ICT's

2.4.6 Mobile Technology at Work Conclusions

This section has shown that ICT's, particularly smartphones can be used in a way that increases boundary blurring, but that this is not automatic and very much depends on a variety of individual and external factors. Some external influences are job characteristics, type of job, work demands, pressure from supervisors and the number of sources of pressure that influence whether people use ICT's outside of work time. However, individuals use ICT's differently based on their own preferences and it may result in different outcomes based on the way that it is used. Individuals can use their ICT's in a way that reflects their own boundary management preferences, although studies that have assessed this have focused on segmentation and integration preferences. As not everyone may have these preferences, Study Two will explore this in group of people with a wider range of boundary management preferences. Summary Table Three highlights that although there has been considerable assessment of the effects of ICT's on the work/nonwork boundary, many of these are now dated because they focused on PDA's or mobile telephones that do not have the same capabilities that current smartphones have. Secondly, the majority of the studies reviewed are in office environments, which is very different from the teleworking context. Some studies have considered ICT's in a remote working context, but only four specifically relate to people working from home (Mustafa & Gold, 2013, Hislop et al., 2015, Golden & Geisler, 2007 and Lal & Dwivedi, 2010). So, there is a gap in the literature that explores the influence of current and commonly used ICT's in a home-based teleworking context and this study will address this gap. The next section will introduce and explore the relevance of personality in a telework context.

2.5 Personality

This section will now consider personality and assess the relevant literature related to personality, telework and boundary management. Section 2.5.1 will define and introduce personality theory, before Section 2.5.2 discusses different personality theories and why the five-factor trait model was chosen as a basis for this study. Section 2.5.3 will the assess how personality traits might manifest themselves in a general work context, before reviewing how they may be particularly active in a telework context (Section 2.5.4), important for the context of this study. Section 2.5.5 will show that there has been little research into the influence of personality traits on the work/nonwork boundary and Section 2.5.6 will show that this is also the case for personality and ICT use in work contexts. Both of these are key to the overarching research question in this study and show the need for studies to add to knowledge in these areas. However, there is literature related to the relationships between personality traits and ICT use in non-work contexts and these are covered in Section 2.5.7 as an informative base with which to build hypotheses for Study One, that go towards answering the overarching research question.

2.5.1 Defining Personality

There is no simple definition of personality and its meaning has changed over time (Brunas-Wagstaff, 1998) but a widely accepted definition is that of Allport:

> *'Personality is a dynamic organisation, inside the person, of psychophysical systems that create the persons characteristic patterns of behaviour, thoughts and feelings'* (1961, 28).

As personality deals with unique patterns of behaviour, it can be useful in exploring and making sense of how people behave and interact in any environment. It could be particularly useful in understanding behaviours in a remote working context, where the individual is largely responsible for setting up their own environment (Hislop & Axtell, 2009). There are two overarching personality theories, the first being 'trait' theory which claims that personality consists of traits that all individuals possess to varying degrees on a continuum. The second is 'type' theory, where individuals are allocated to a personality category, such as

in the MBTI model. Trait theory acknowledges that most people do not have extreme personalities, but their traits lie somewhere along a scale (Eysenck, 1994). Personality traits are:

> *'Broad, enduring, relatively stable characteristics used to assess and explain behaviour'* (Hirschberg, 1978, 45).

This study will use trait theory because it assumes that 1) that traits are stable over time across a range of situations and 2) that traits influence behaviour (Matthews, Deary & Whiteman, 2003), so if traits influence behaviours, then they can be expected to do so in a teleworking context. It could be difficult to use a type theory in this study, because to fully assess and compare all of the different available types would require an extremely large sample due to the differences in prevalence of different types within the population (The Myers & Briggs Foundation, 2013). However, according to trait theory, everyone possesses each trait within a model to a degree (Cooper, 2015) and so it should be more accessible to capture a range of traits to different degrees in a sample by using this model. There are also some well documented issues such as with construct validity and reliability in some type models such as the MBTI (Pittenger, 1993). In addition, trait studies are very popular and most other studies of personality in this field have used trait models (see Table Seven, page 84 for a list of studies that use trait approaches to assess personality and ICT use). Therefore, conducting this study from a trait perspective will facilitate a better way to build this study from the literature and also to discuss it in relation to the literature after completion.

2.5.2 Factor Models of Personality and the Five Factor Model

Within the trait model of personality, there is debate over how many personality traits or 'factors' exist, with theories ranging from three factors to sixteen (Eysenck, 1994). There are several five-factor models of personality, each different but containing overlapping dimensions (Matthews et al., 2003). The most commonly used five-factor model, extensively tested and developed is by Costa and McCrae (1992) and claims that there are five overarching personality factors: openness, conscientiousness, extraversion, agreeableness and neuroticism. When referring to the 'five factor model' (FFM) in this study, reference will be to the Costa and McCrae (1992) model. The FFM has undergone substantial validation testing, including self and peer ratings showing significant agreement on all five dimensions

(McCrae & Costa, 1987). In the FFM, each factor has six individual facets (also called 'narrow traits') and Table Four below shows the five traits and their associated facets (Costa & McCrae, 1995).

Table 4: Big Five Personality Factors and their Facets

Trait	**Facets**
Openness to Experience (O)	1. fantasy 2. aesthetics 3. feelings 4. actions 5. ideas 6. values
Conscientiousness (C)	1. competence 2. order 3. dutifulness 4. achievement striving 5. self-discipline 6. deliberation
Extroversion (E)	1. warmth 2. gregariousness 3. assertiveness 4. activity 5. excitement seeking 6. positive emotions
Agreeableness (A)	1. trust 2. straightforwardness 3. altruism 4. compliance 5. modesty 6. tender-mindedness
Neuroticism (N)	1. anxiety 2. angry hostility 3. depression 4. self-consciousness 5. impulsiveness 6. vulnerability

Table Five below gives a list of adjectives describing each of the overarching broad traits in the FFM, before the next section will look more specifically at how these traits may function in a work context.

Table 5: The Five Broad Traits and Examples of Adjectives Related to Each Trait

Trait	**Adjectives associated with each trait**
Extraversion (E)	Active, assertive, energetic, enthusiastic, outgoing, talkative
Agreeableness (A)	Appreciative, forgiving, generous, kind, sympathetic
Conscientiousness (C)	Efficient, organised, planful, reliable, responsible, thorough
Neuroticism (N)	Anxious, self-pitying, tense, touchy, unstable, worrying
Openness to experience (O)	Artistic, curious, imaginative, insightful, original, wide interests

(Table adapted from Chittaranjan, Blom & Gatica-Perez, 2013, p435)

2.5.3 Personality at Work

Personality traits influence work behaviours, including work satisfaction, unemployment and vocational choices (Furnham, 1991). Conscientiousness is the most predictive trait in relation to job performance (Barrick & Mount, 1991), and positively related to life satisfaction (Quevedo & Abella, 2011). Neuroticism is related to negative affect, lower subjective wellbeing and lower work satisfaction, while extroversion is positively related to positive affect (Quevedo & Abella, 2011). Personality traits influence the way that people function at work and Table Six adapted from Howard and Mitchell-Howard (2001) below, shows how each of the five traits might manifest in a work environment.

Table 6: The Five Factor Model Traits' Potential Influence on Behaviour in the Workplace

Trait	Low Scorer	Moderate Scorer	High Scorer
Openness	Conservative, practical, efficient	Good at managing the tension between innovation and efficiency	Curious, dreamer, visionary
Conscientiousness	Spontaneous, playful, comfortable with chaos, good at multitasking	Keeps work and private demands in balance	Organised, perfectionistic, ambitious
Extraversion	Private, reserved, inhibited	Enjoys a balance of solitude and sociability	Sociable, enthusiastic, active
Agreeableness	Questioning, competitive, proud	Comfortable holding out for a win-win situation	Accepting, good as a team player, good helping others
Neuroticism	Content, controlled, secure, stress-free	Occasionally bothered by stressful circumstances	Tense, alert, anxious

Table Six shows that how individuals score in the FFM may manifest in a work environment and these personality traits are likely to influence workplace behaviours. However, they are also likely to be particularly relevant in a teleworking context, where the individual may have more control over setting up and shaping their own working space (Nansen et al., 2010 and Kreiner et al., 2009). These traits might influence how individuals shape it, such as whether they do so in an organised, haphazard or innovative way. So personality traits offer a framework with which to investigate individual differences in boundary management because they are likely to influence the ways that individuals behave at work.

Similarly, according to Nansen et al. (2010), different time management behaviours have been associated with different work environments, for example; home-based working has been associated with polychronicity (the non-linear use of time, where several different tasks may be engaged with simultaneously). Monochronicity has been more associated with traditional working environments and systematised time practises, where tasks are often ordered in sequence. These natural differences between the home and office as a workplace, suggest that the merging of spheres and integration of tasks may be easier to achieve in a

home-based work context as it naturally lends itself to polychronicity. Therefore, avoiding or preventing this integration while working from home, may be something that home-based teleworkers have to work at through individual action and an expression of their desires in this context, especially if they tend to prefer a more segmented style. Likewise, teleworkers may be more likely to direct their own use of time, such as when to start and finish work and when to take breaks. Social learning theory (Bandura, 1977) suggests that people often learn from and imitate the behaviour of others, so in an office there may be more social cues from colleagues that influence these time related decisions. In relation to technology use, which is particularly prevalent for home-based teleworkers, individual decisions about how and when to use smartphones and what boundaries will be set with them also need to be made (Dery & MacCormick, 2012).

So, overall individual differences and personality traits may be more active in a home-based teleworking context, because it may offer individuals freedom and personal responsibility to manage their space, time and technology and to express themselves with less interference from external sources. It may also take more individual effort to deal with its natural boundary blurring and high degree of ICT use. The next section 'Personality and Telework' will explore whether this is supported by telework research.

2.5.4 Personality and Telework

There is a lot of research into personality in traditional workplaces but fewer studies of personality in a teleworking context. Baruch (2001b) expressed concerns about the effects of teleworking on individuals such as isolation and loneliness, but does not take individual differences into account. Individuals may respond differently to working in such an environment and the advantages and disadvantages may not be equally shared. For example; Mann and Holdsworth (2000) found that teleworkers had more difficulty switching off after work and feelings of irritation resolved more slowly due to the physical distance from colleagues. Similarly, teleworkers felt more guilt over doing non-work activities, even though the flexibility enabled them to do so. As rumination is a form of work-nonwork interruption (Montgomery et al., 2009), this difficulty switching off and feelings of guilt might be more of an issue for individuals scoring highly in neuroticism who already have a propensity toward

negative emotional states, but less of an issue for more extraverted teleworkers who tend toward positive affect (Costa & McRae, 1980 and Quevedo & Abella, 2011).

There have been very few studies specifically exploring the relationships between telework and personality. A study by Brown (2010) explored the relationships between personality type and challenges of telework using the Myers Briggs Personality Type Indicator (MBTI). She found that personality was relevant in teleworking related difficulties. Some personality types were more likely to experience feelings of isolation and exclusion than others, such as the 'ESFP', 'ENFP', 'INTP' and 'INFJ' types. However, the MBTI has been heavily criticised for its lack of construct validity, reliability and evidence to support its claims (Pittenger, 1993). The sample in this study did not represent all of the possible 16 personality types, which would have been difficult without an extremely large sample considering that some types are significantly rarer than others and not as easy to find in a given population (The Myers & Briggs Foundation, 2013). Nevertheless, this study provides some evidence that personality has some influence over the experiences of teleworkers and the ways that they might find it easier or more challenging.

An ability to work independently, honestly and dependability were important perceived traits for teleworker success (Lomo-David & Griffin, 2001), although these are based on perceptions rather than correlates to success. Personality traits were also relevant to attitudes to telework in a study by Clark, Karau and Michalisin (2012), who found that neuroticism correlated to a favourable attitude, as telework may be an opportunity to avoid unpleasant situations in the work environment, perhaps preferable for those scoring highly. Conscientiousness did not relate to telework attitudes however, so this trait may transfer into any environment and telework does not provide different opportunities in this respect. Interestingly, although it might be thought that extraverts' attitudes to telework might be less favourable because of their need for stimulation and social activity, no relationship was found between extraversion and attitudes to telework. This suggests that they may find ways to stay connected to colleagues or network in other ways while teleworking to mitigate its effects. Although this study had a large sample (N = 333), it consisted purely of business students and only explored attitudes to telework, showing the need for further studies of teleworkers.

O'Neill et al's. (2009) study tested the differences between home-based teleworkers and non-teleworkers job performance and selected traits from the HEXACO-PI: organisation, diligence,

sociability, need for achievement, and need for autonomy. Sociability was negatively related to job performance for teleworkers indicating that more extraverted individuals might find teleworking more difficult than a traditional working environment which in turn may affect their job performance. Need for autonomy was strongly related to job performance in teleworkers, suggesting that autonomy is an important trait for success, perhaps because an ability to structure one's own schedule is well suited to teleworking. Diligence and need for achievement were more strongly related to non-teleworker than teleworker job performance, showing that if they are less diligent, teleworkers may work longer to make up for time lost during the work day, thereby blurring the work-nonwork boundary. They conclude that a teleworking environment might not be conducive for people with a strong need for achievement. This study may indicate that certain traits including conscientiousness and extraversion, which are related to the traits tested, play some role in attracting and retaining people in telework roles. However, O'Neill's study only included employees from eight organisations in Canada. The findings may not hold true for self-employed teleworkers, for example if running a successful business, they would likely be relatively ambitious.

A few studies also exist that investigate the way that personality traits influence remote workers use of technology while working. O'Neill et al. (2014a) brought together an exploration of personality traits and technology use in remote workers, through a study of 'cyberslacking' (using the internet while one should be at work). This study explored the FFM traits along with honesty and humility. Neuroticism was an important predictor of cyberslacking, suggesting people scoring highly in neuroticism may turn to the internet when experiencing negative emotions such as anger or anxiety and this might serve as a distraction from work. A second study that assessed cyberslacking when working away from the office, found that only neuroticism out of the five traits was positively related (O'Neill et al., 2014b) supporting the findings of the previous study. Further investigation of neuroticism in a telework context may be beneficial, because the heavy dependence on technology in home-based teleworkers may serve as a distraction via the internet for high scorers in the trait, thereby potentially increasing the nonwork-work interruptions that they experience.

Although more extraverted people might be thought to seek out opportunities to socialise via the internet when remote working away from other people, O'Neill et al. (2014a) found that they were not distracted by the internet as a means with which to meet these needs. In other

words, behaviours to reduce isolation and boredom did not come specifically through cyberslacking. However, these studies focus specifically on use of the internet, which does not necessarily involve engaging with other people, so further exploration of extraversion might be worthwhile in a telework context. There may be other distractions more appealing to people more extraverted in nature, which involve contact with people such as messaging, texting or phone calls, the use of which to gain social contact during work time may increase nonwork-work interruptions.

This section has considered the literature on the influence of personality traits in teleworking environments and shown that there is a deficiency of research into this topic area. Some of the literature that does exist assesses attitudes and perceptions of telework (Lomo-David & Griffin, 2001 and Clark et al., 2012), rather than behaviours, or from actual teleworking samples. Two of O' Neill et al's studies (2014a and 2014b) focus specifically on 'cyberslacking' while teleworking and yield interesting results showing that the big five traits may influence internet behaviours during work time. O' Neill et al.'s (2009) study assesses the relationship of some traits to telework success, but these traits are not specifically big five traits and Brown (2010) uses the MBTI, but the FFM is commonly used in organisational research (Costa, 1996). Although these studies point to traits being potentially relevant in a telework context, particularly extraversion, conscientiousness and neuroticism, all of these studies only focus on the work sphere and do not consider the non-work sphere at all. This study will go further to assess if these relevant big five personality traits influence actual teleworker behaviour in a teleworking context, in both the work and non-work spheres. So there is some evidence that suggests that personality traits influence individuals in a teleworking context and the next section will explore the literature on how these traits influence management of the work/nonwork boundary.

2.5.5 Personality and the Work/Nonwork Boundary

There are very limited studies directly exploring the effects of personality on work/nonwork boundary management. A study of attachment styles found that 'preoccupied' anxious type attachment styles were related to negative spillover in both directions (Canan Sumer & Knight, 2001). The authors concluded that people with this preoccupied style might have more difficulties in managing their boundaries between work and non-work, than others who

are more securely attached. As neuroticism is related to anxious attachment styles (Noftle & Shaver, 2006), this could be an issue for people scoring highly in neuroticism and they may experience more difficulties in maintaining and managing the boundary. Put another way, high scorers may experience more interruptions in both directions if they struggle to maintain boundaries, pointing to the need to investigate this further. There is certainly a gap in the literature that explores the nature of the influence of personality traits on boundary management. This study aims to explore this gap in the literature through testing the FFM traits, particularly whether neuroticism is related to interruptions in both directions, as may be the case based on pointers from Canan Sumer and Knight (2001) and Noftle and Shaver's (2006) studies which were mentioned above. So, based on the literature, it is not known if personality traits do influence boundary management, but the next sections will explore whether personality traits influence the way that people use ICT's, because ICT's do influence boundary management and these may be interlinked.

2.5.6 Personality and ICT Use in Work Contexts

One important feature of telework is its need for ICT's (Golden, 2009) and as personality traits may influence how teleworkers manage their boundaries (O'Neill et al., 2014a and 2014b), it may also be an important factor in how they make use of the technology that is available to them. There is far more literature related to the influence of personality traits on general and non-work related ICT use than for work purposes or during work time (see Table Seven in Section 2.5.7, page 84). Boswell and Olson Buchanan (2007) found that employees scoring more highly in ambition and job involvement were more likely to use their mobile phone out of hours for work purposes and these employees were more likely to experience work-life conflict. For people with this dispositional factor, the mobile phone becomes a tool with which the person can seek to improve their promotion opportunities by making themselves available via the phone, but in turn, this might encourage more work-life conflict.

A workplace study of excessive technology use (Buckner et al., 2012) found that age and conscientiousness were negatively related to excessive internet and mobile telephone use, the other four FFM traits were not related. This suggests that highly conscientious people may be less likely to be distracted by or waste time with technology at work, especially considering that it is predictive of job performance (Barrick & Mount, 1991). If this is the case,

they may be less likely to use ICT's when it is not necessary, for example using it for contact with friends and family, internet browsing or playing games during work, all of which can be distractions and ways with which to cross the boundary. Therefore, conscientiousness may be a relevant trait related to boundary management interruptions and this will be explored and tested in Study One. Even though there are few work related studies, many non-work studies exist and these may inform us as to whether personality traits are predictive of technology use behaviours and if so how they are important. If they are important, they can then be investigated to establish whether or not there is a similar pattern when used for work purposes. Study One will explore this topic in the underexplored work setting. The next section will review the literature related to the influence of personality traits on ICT use for non-work purposes, to inform the focus of Study One and Study Two. It will cover the available literature related to different types of ICT's and some of its features to establish which traits might be of importance.

2.5.7 Personality and ICT Use in Non-Work Contexts

There are many reasons why people use smartphones in the way that they do and perceptions of the device influence the use of it (Kwon & Chidambaram, 2000). Ling & Yttri (2002) found that two-career parents used mobile phones most for coordination, to assist each other in running the household, the elderly for security and teens to interact with friends. Women tend to use them more for security than men (Garcia-Montes, Caballero-Munoz & Perez-Alvarez, 2006). There is also a decline in the use of smartphone features with age (Lane & Manner, 2011). However, most studies on the influence of personality traits on mobile telephone use, focus on problematic rather than general use (Takao et al., 2009 and Bianchi & Phillips, 2005) and on students, young people and adolescents (Beranuy, Oberst, Carbonell & Chamarro, 2009, Martinotti, Villella, Di Thiene, Di Nicola, Bria, Conte, Cassano, Filippo, Petruccelli, Corvasce, Janiri & La Torre, 2011 and Lopez-Fernandez, Honrubia-Serrano, Freixa-Blanxart & Gibson, 2013), showing that there is a need for further studies exploring personality and non-problematic adult smartphone use.

In assessing the relationships of the FFM traits to general technology use, there are mixed results from a number of studies that are now quite dated, as they relate to mobile telephones and early smartphones that do not have the same degree of functionality that

current smartphones have. However, these studies still tell the story of this topic so far. Phillips, Butt and Blaszczynski (2006) found that conscientiousness was negatively correlated to game use on mobile telephones and although extraversion did not predict game playing, the study suggests that extraverts use their phone to reduce boredom while introverts use it to engage in solitary pursuits. This suggests that the mobile phone can be a tool with which to seek out stimulation for extraverts if they are feeling bored in any context, while more highly conscientious people may not turn to it as a source of stimulation. Ehrenberg, Juckes, White and Walsh (2008) found extraversion and neuroticism were negatively related to text messaging. Butt and Phillips (2008) found that neuroticism and extraversion were positively correlated to frequency of text messaging and conscientiousness negatively related. As text messaging gives the sender more time to plan their communication, it may be favourable for high scorers in neuroticism and the quick contact with people may be important for high extroversion, but high scorers in conscientiousness may prefer to communicate in other ways.

Butt and Phillips (2008) supports Lane and Manner (2011) who found that neuroticism was related to the use of the email function of smartphones possibly for similar reasons to using text messaging more frequently. Interestingly, smartphone owners had significantly higher levels of extraversion when compared to people who did not own a smartphone (Lane & Manner, 2011), but when it comes to phone calls, extraversion was not related to making more outgoing calls but was related to receiving more incoming calls (Butt & Phillips, 2008). This suggests that high scorers in extraversion may not rely on their phones as a means with which to reach out to people in an everyday context, preferring face to face social interaction. However, in a teleworking context where they would typically be more isolated than usual (Morganson et al., 2010), it could become a resource for social interaction.

A study by Chittaranjan et al., (2011) explored data retrieved from smartphones in relation to the use of its functions. The findings indicated that high scorers in extraversion were more likely to receive phone calls and spent longer on phone conversations. Conscientiousness was negatively related to use of the text messaging facility and neuroticism and conscientiousness positively related to using the email feature. Email is more likely to be work-based or used for essential communications and this might be why highly conscientious individuals are more likely to use it. These findings support Butt and Phillips (2008) and Lane and Manner, (2011). A follow up study (Chittaranjan et al., 2013) showed that extraversion was positively related

to office and calendar app use, but negatively related to games and internet usage. This implies that they may be planning their social calendars with the calendar app, but as games and internet use are largely solitary pursuits, they may avoid these in favour of time spent on more social activities. On the other hand, introversion was related to internet use, a primarily solitary pursuit. Conscientiousness was negatively related to use of YouTube and music apps and also spending less time on incoming calls but having fewer missed calls, suggesting that high scorers in conscientiousness may avoid wasting time on their phones and only wish to use it in a time efficient way. Neuroticism was negatively correlated to incoming text messages indicating that people may feel less comfortable contacting high scorers in neuroticism by text message, even though other studies have shown that they initiate text messages more frequently (Butt & Phillips, 2008). The advantage of these two studies (Chittaranjan et al., 2011 and Chittaranjan et al., 2013) is that they are based on recorded actual smartphone use rather than self-report, so are likely to offer reliable frequencies in smartphone feature usage.

Another trait found to be of interest in smartphone usage was the narrow trait of impulsiveness. Billieux et al. (2008) found that the urgency component of impulsiveness was related to both problematic and actual mobile phone usage of its main features such as texting and telephone calls. This signals that high scorers in impulsiveness may find it difficult to delay using their mobile telephones even if it results in negative consequences and they may use them more frequently for everyday non-problematic use as well. Although this study is not related to workplace behaviours, home-based teleworkers frequently use technology as part of their jobs (Golden, 2009) and if impulsiveness is related to smartphone use in a non-work context, it might be difficult for people scoring highly in impulsiveness to not exhibit similar behaviours at work. This being the case, it may be worth exploring the trait of impulsiveness and its influence on ICT use further in a work context. Study One will investigate this relationship and an in-depth rationale for this is explained in Section 2.6 below.

In addition to the studies covered that assess technology and its functions, some studies focussing solely on the effects of personality on the use of the internet also exist and will now be discussed. Extraversion and conscientiousness were inversely correlated to internet usage amongst college students in a study by Landers and Lounsbury (2006). These results suggest

that high conscientiousness may be an indicator of spending more time in offline structured activities or preferring to spend time achieving good grades. High extraversion may suggest preferring friendships and activities offline, thereby spending less time on the internet. Although this study is not work related, it involves college students and work-based activities are a relevant factor for this group. It may be the case that extraversion and conscientiousness function in a similar way in a work environment, or that the internet may be less of a distraction for people scoring highly in these traits. If the internet is less of a distraction this may have implications for boundary management in a telework context, as it may mean that the internet would be less likely to be a source of nonwork-work interruptions for people scoring highly in conscientiousness. However, there may be some differences for these behaviours in a telework context for people scoring highly in extraversion, which will be discussed further next.

According to Amichai-Hamburger et al. (2002), personality traits are linked to aspects of social interaction and to the way that people use the internet. Their study found differences in the way that extraverts and introverts express their personalities on the internet. Introverts were more likely to locate their 'real me' expression of their personality online through internet 'chat' in comparison to extraverts who located their 'real me' within general social interactions in the 'real world'. These findings support Chittaranjan et al. (2013) and Landers & Lounsbury (2006), that in general non-work contexts, more extraverted individuals seem to prefer real life interactions than internet based ones. However, a teleworking context being more isolated (Morganson et al., 2010) may provide a different environment within which ICT's may be used to provide a source of social contact or stimulation. This will be tested in Study One by assessing whether extraversion is related to frequency of ICT use and work-nonwork interruptions.

Use of social media sites such as Facebook can also be a way that people express their personalities online and Ross, Orr, Sisic, Arseneault, Simmering and Orr (2009), ascertained that although extraversion was related to being a member of more Facebook groups than introversion, it did not predict having more online friends, providing more evidence that more extraverted people may prefer to socialise face to face than online. Similarly, people scoring highly in neuroticism, preferred the wall feature of Facebook where they had more control over the information they shared, while low scorers preferred to post photos. Having more

control over the information shared may reduce anxiety in individuals scoring highly in neuroticism. Conscientiousness was not found to be related to Facebook usage. The authors conclude that although personality traits play a small role, motivation and ICT competence are likely more significant predictors of this form of online interaction. Alternately, Ryan and Xenos (2011) found that extraversion and neuroticism were both related to frequency of Facebook use. This may be because engaging with Facebook may increase social capital; a potential benefit for more extraverted people. In a less sociable teleworking context (Morganson et al., 2010), use of such websites could become a means for social activity or networking for more extraverted and gregarious individuals, with a strong need for high social capital. However, it might become a source of anxiety for people scoring highly in neuroticism (Howard & Mitchell-Howard, 2001), which could serve as a distraction from work. In both cases, it could become a means with which to blur the boundary between non-work and work through engagement with it during work time, especially in a teleworking context where there is little supervision (Chen & Nath, 2008 and Raiborn & Butler, 2009).

Table Seven below summarises the studies into the influence of personality traits on ICT use and its functions.

Table 7: Studies of Personality Traits and their Influence on ICT Use in Work and Non-Work Based Studies

Author and Date	Country of Origin	Focus of Study	Personality Traits Studied	Population Studied and Sample Size
Buckner et al. (2012)	USA	Mobile phone and internet use at work	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	170 employees in an online survey study
Butt & Phillips (2008)	Australia	Use of mobile telephone features	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	112 participants in a survey study of mobile phone owners aged 18-59
Ehrenberg et al. (2008)	Australia	Use of mobile telephone features	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism and self-esteem	200 participants in a survey study of students who owned mobile phones and had computer access
Philips et al. (2006)	Australia	Gaming use on mobile telephones	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	115 participants in a survey study of students and public
Lane & Manner (2011)	USA	Smartphone ownership and use	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	312 participants in a survey study of participants aged 18-77 recruited via social media
Billieux (2008)	Switzerland	Actual and problematic mobile phone use	Components of Impulsivity: urgency, premeditation, sensation seeking and perseverance	430 participants in a survey study of the public aged 20-35

Chittaranjan et al. (2013)	Switzerland	Smartphone usage patterns	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	117 participants aged 19-63 of the public. Data collected over 17 months from mined smartphone data.
Chittaranjan et al. (2011)	Switzerland	Smartphone usage patterns	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	83 participants aged 19-63, of the public. Data collected over 8 months from mined Smartphone data.
Amichai-Hamburger et al. (2002)	Israel	Internet chat room use	Extraversion	40 participants in a survey study of regular chat room users aged 20-32
Ross et al. (2009)	Canada	Frequency and style of Facebook use	Five factors: openness, conscientiousness, extraversion, agreeableness and neuroticism	97 participants in a survey study of student Facebook users
Ryan & Xenos (2011)	Australia	Frequency and style of Facebook use	Extraversion, narcissism, loneliness, shyness, neuroticism	1324 participants in a survey study of Facebook users aged 18-44
Landers & Lounsbury (2006)	USA	Internet use	Five factors: openness, conscientiousness, extraversion, agreeableness, neuroticism and narrow traits of: optimism, work drive and tough mindedness	117 participants in a survey study of students

So, a review of the literature related to the influence of personality traits on ICT use and the use of its functions in this section and displayed in Table Seven above, has shown that the large majority is related to problematic or non-work use, rather than work-related use by adults. Study One in particular will aim to explore this topic in a work context, much underexplored within the literature. The studies reviewed have largely used the FFM and been very informative in providing an understanding of the traits that influence ICT use in non-work contexts. These studies purport that conscientiousness may be a trait that is protective against ICT use becoming problematic (Landers & Lounsbury, 2006, Chittaranjan et al., 2013 and Phillips et al., 2006), so it may be speculated that ICT's could be used less to create interruptions during work time for high scoring individuals. Neuroticism and impulsiveness may be rather more related to problematic use (Lane & Manner, 2011 and Butt & Phillips, 2008), which could indicate the potential to blur boundaries during work time. Studies of extraversion (Chittaranjan et al., 2013, Amichai-Hamburger et al., 2002 and Landers & Lounsbury, 2006) suggest that it is not necessarily related to being used for socialising in non-work contexts, but in a more isolated telework context (Morganson et al., 2010), ICT's could be a means with which to connect with others for more highly extraverted and gregarious individuals who have a strong need for sociability. Study One will build upon these studies by also utilising the FFM and testing these traits' relationships to frequency of ICT use in a work context. Study One uses the same personality model, so it will be possible to compare the findings with these studies in non-work contexts.

Many of the studies (Butt & Phillips, 2008, Ehrenberg et al., 2008, Billieux et al., 2008, Amichai-Hamburger, 2002, Landers & Lounsbury, 2006, Phillips et al. 2006 and Lane & Manner, 2011) in Table 7 (page 84), are also relatively dated considering that ICT's have changed so quickly over the last decade. These all refer to older technology such as mobile telephones, that do not have the same level of functionality that current smartphones possess. This shows a need for similar studies that assess newer technologies and Study One will investigate a range of different ICT's. In addition, although these studies show that personality traits do seem to be related to the way that people use their ICT's and their functions, they are limited by their methods, in that they cannot explore the rationale or motivations behind why individuals may use them in the way that they do. Study Two will explore ICT use behaviours in greater depth,

through qualitative methods to glean rich data into why people may use their ICT's in different ways, as this cannot be readily investigated through survey data.

2.5.8 Personality Conclusions

So, a review of the literature related to personality and ICT use has shown that extraversion, neuroticism and impulsiveness are the most significant traits associated with problematic mobile telephone usage (Billieux, 2012) and that conscientiousness may serve as a protective factor (Buckner et al., 2012). However, the relationships between personality traits and mobile phone usage are modest (Lane & Manner, 2011, Billieux et al., 2008 and Chittaranjan et al., 2011), indicating that although they play a role in how people use their technology, there are other factors involved. Personality studies have been criticised for only explaining a small degree of the variance in what they are testing (Hogan, Desoto & Solano, 1977) and although traits are thought to be largely fixed and enduring, there is some fluidity, an example being that individuals become less neurotic as they age and this effects subjective wellbeing such as life satisfaction (Boyce, Wood & Powdthavee, 2013). So, testing of traits may reveal a small insight into behaviours, but there are other factors also involved. However, in this under researched area of telework, there may be larger effects, because of the uniqueness of the environment, where individual agency is used to shape the environment (Kreiner et al., 2009 and Nansen et al., 2010) and the reduced level of direct contact and supervision (Chen & Nath, 2008 and Raiborn & Butler, 2009). Expressions of personality may be more likely to exert themselves in such a context.

A predictor of mobile phone use is the amount of time since possessing it, therefore, any behaviours exhibited in relation to phones are fluid to an extent and likely to increase over time and become more ingrained with experience (Billieux et al., 2008). Similarly, there is likely to be a diverse range of behaviours exhibited with mobile telephones between different individuals and across different contexts. An in-depth exploration of a diverse group of participants in an under researched area like home-based telework, would assist in shedding some light on how ICT's are used in this context and Study Two aims to investigate this. Now that the literature has been reviewed in full, the next section, Section 2.6 will draw this together and give a rationale for the study and Section 2.6.1 will discuss the reasons for including some narrow traits.

2.6 Rationale for a Study

There is significant research into work-nonwork boundary management and individual styles that individuals might use to manage their boundaries (Kossek et al., 2012). However, what is clear is that home-based teleworkers experience different boundary management issues than those working in traditional environments and that they develop a range of strategies to manage the boundary (Kreiner et al., 2009). The differences in management for teleworkers is largely due to the lack of physical distinction between work and home (Kossek et al., 2009), meaning that they must be more active about creating their working space and boundaries (Nansen et al., 2010). Social learning theory (Bandura, 1977) suggests that people learn from and mimic the behaviours of others, but teleworkers working from home do so in their own space and have fewer external cues that they may take to learn from others. An example of this is people working in an office may take cues from colleagues or managers about boundary management, such as when is an acceptable time to leave the office, when to take breaks, or whether using smartphones during work is acceptable. People teleworking from home may not receive these cues, or not as strongly and so their behaviours may be more readily influenced by their own individual differences and personality traits.

Home-based teleworkers' dependence upon mobile technology to communicate (Baruch, 2001a) suggests that the management of this technology may be of key importance as it is such a significant aspect of their working conditions. Teleworkers often feel the need to be present and available for work more than their office working counterparts (Halford, 2005 and Mann & Holdsworth, 2003) and they can feel passed over for new opportunities and do not want to be perceived as 'slacking' (Chen & Nath, 2008). This being the case; they may be under more pressure to stay connected to their ICT's as a means with which to be 'seen' and the relationship with technology may be more intense due to the dependence on it to communicate and meet these needs. It is apparent that personality traits influence how people use ICT's and that extraversion, neuroticism, impulsiveness and conscientiousness are particularly relevant traits in ICT management (Billieux, 2012, Buckner et al., 2012, Phillips et al., 2006, Landers & Lounsbury, 2006 and Butt & Phillips, 2008). Although there is an abundance of research into problematic and nonwork-related technology use, it is not clear whether work-related use mirrors or is different from the nonwork-related findings. The teleworking environment is different to nonwork and traditional work environments, as it is

often more isolated (Morganson et al., 2010), so ICT's may be used differently in this context than in everyday use. An exploration of personality traits on ICT use for work purposes, particularly a home-based teleworking sample, would add to the body of literature that exists on personality and technology use. Considering that mobile technology can be a boundary blurring tool (Prasopoulou et al., 2006 and Montgomery et al., 2009) and individual differences play a role in how people use them, such as whether they choose to keep them switched on or off (Boswell & Olson-Buchanan, 2007) personality traits may be of importance in how home-based teleworkers utilise their ICT's and their subsequent influence on boundary management.

Research into boundary preferences is important for businesses because their work-life policies can influence recruitment and retention of employees, (Rothbard et al., 2005, Beauregard & Henry, 2009 and Orlikowski, 2007). So, boundary management preferences are a key consideration for employers and understanding more about them may inform recruitment and retention policies. Teleworking is projected to grow as more organisations offer the option to telework (CBI, 2011 and Coyne, 2016), so organisations may wish to explore which employees are best suited to telework when recruiting new employees and be aware of extra training needs for teleworkers that might find it more difficult. All three elements: work/nonwork boundary, ICT's and personality can be brought together to investigate their relationships to each other and build knowledge to inform teleworking practices for individuals and organisations.

This section has reviewed the rationale for this study and before exploring the research questions stemming from this rationale and their subsequent hypotheses, the next section will consider the rationale for using both broad and narrow traits from the FFM. It is necessary to review the relevance and importance of testing narrow traits, before discussing how they fit into the hypothesis development.

2.6.1 A Rationale for Using Broad and Narrow Traits

Studies have shown that broad traits are different to and wider than their narrow traits in aggregate (Dudley, Orvis, Lebiecki, & Cortina, 2006). Narrow traits may be associated with other variables when their related broad trait is not and vice versa, for example Hastings and O'Neill (2009) found that although the narrow trait of anger was predictive of

counterproductive work behaviours, the broad trait of neuroticism was not. Kausel & Slaughter (2011) found that narrow traits were relevant to self-selection into organisations, and although conscientiousness had the highest level of predictive validity, the other broad traits were not as predictive and may be too wide to include the nuances needed to predict with a high degree of accuracy. In addition, narrow traits may be more closely associated with motivations (Jadin, Gnambs & Batanic, 2013), which may be of importance in reasons why people choose to telework. Studies have indicated the need to include narrow traits when testing the predictive validity of personality factors and their impact upon work behaviours (Landers & Lounsbury, 2006 and Kausel & Slaughter, 2011).

Christiansen & Robie (2011) found that exploring narrow as well as broad traits, explained an extra 10% of the variance, showing that narrow traits can give a fine-grained picture in the analysis of traits and their relationship to other variables. This study shows that testing narrow as well as broad traits may reveal differences that would go unnoticed if not explored and that narrow traits may not necessarily follow an identical pattern to their relative broad domain traits. Narrow traits have significant explanatory importance and three relevant narrow traits; gregariousness, impulsiveness and dutifulness were selected based on their relevance to a teleworking context. Schneider, Hough & Dunnette (1996) recommends that when choosing traits to explore, it should be determined which specific factors are relevant to a job and then linking those factors to pertinent narrow traits. Home-based telework is an environment that is often more isolated (Morganson et al., 2009) (making gregariousness a potential relevant trait) and lacking in direct supervision (Chen & Nath, 2008 and Raiborn & Butler, 2009) where individuals are left to their own devices (meaning that dutifulness and impulsiveness may also be relevant to the environment). A more in-depth rationale for focussing on the specific broad and narrow traits in this study are detailed below in Section 2.7.1 and 2.7.2. Table Four in Section 2.5.2, page 71 shows the full list of traits in the FFM, a total of 30 narrow traits. It would not be possible to investigate all 30, as this would lead to an unfeasibly long survey and too many hypotheses for one study. The next section will discuss the research questions that will be answered through Study One.

2.6.2 Research Questions

To explore the relationships between the work/nonwork boundary, ICT use and personality traits the following overarching research question for this mixed methods project was devised:

'Do personality traits and ICT use influence how teleworkers manage their work-nonwork boundary?'

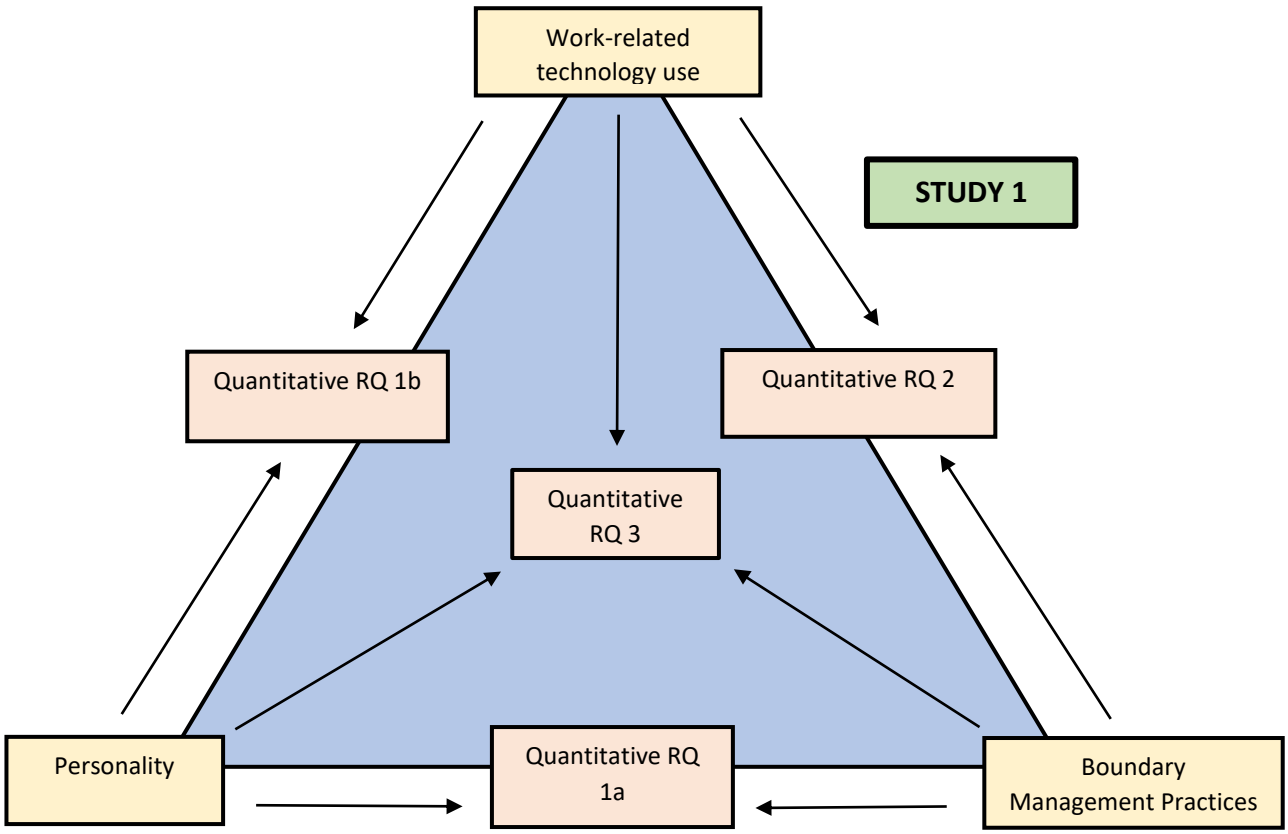
To answer this overarching question, Study One focuses on exploring whether there are relationships between the stated factors and if so to establish the nature and strength of the relationships. The focused research questions that aim to explore this are as follows:

1) Are there relationships between personality traits and:
    a) the way that people manage their work-nonwork boundary (specifically interruptions between spheres)? and
    b) frequency of ICT use?

    If these relationships do exist, what is their nature and strength?
2) Is there a relationship between frequency of ICT use and work-nonwork boundary management (specifically interruptions between spheres)? If these relationships do exist, what is their nature and strength?
3) What is the overall relationship of the three variables: personality traits, work-nonwork boundary management and frequency of ICT use when assessed together?

Study One aims to answer these three focussed research questions, along with the 13 hypotheses designed to answer these questions, the development of which are presented in Section 2.7 next and these are related specifically to Study One. Figure One below shows the model of the relationships being tested in Study One.

Figure 1: Model of the Relationships of the Variables Tested in Study One



2.7 Hypothesis Development Related to Personality Traits, ICT use and Work/Nonwork Boundary Management in Study One

To answer the research questions stated above, hypotheses were formulated to be investigated in Study One and the development of these are discussed below. It is expected that the relationships may not be large, as this is consistent with various studies of the effects of the FFM traits on a range of different workplace phenomena (Lane & Manner, 2011, Billieux et al., 2008 and Chittaranjan et al., 2011). A large number of hypotheses are tested in Study One and this is due to the complex nature of the number of potential connections between work/nonwork boundary management, ICT use and the traits and facets. Table Eight summarising each of the research questions and their subsequent hypotheses can be found below in Section 2.8 (page 100) after an explanation of the hypothesis development.

2.7.1 Personality Traits and Work/Nonwork Interruptions

Personality traits influence the way that individuals work and provide a good framework with which to test individual differences in a work environment (Howard & Mitchell-Howard, 2001, Furham, 1991 and Barrick & Mount, 1991). However, studies into the effects of personality traits on boundary management are lacking.

2.7.1.1 Conscientiousness and the Facet of Dutifulness

Conscientiousness is associated with being achievement focused, dependable and organised and people scoring highly in conscientiousness have a strong will to succeed but may also exhibit workaholic behaviours (Barrick & Mount, 1991 and Costa & McCrae, 2006). This being the case, it might be expected that highly conscientious people may allow more work interruptions to occur. Allowing work interruptions into personal time by continuing to work may increase perceived promotion opportunities (Boswell & Olson Buchanan, 2007); important for conscientious people and this could be a way around the perceived lack of opportunities that teleworkers often feel excluded from (Chen & Nath, 2008). Tolerating some work interruptions might enable work to be completed and provide a sense of achievement that conscientious people find appealing (Costa & McRae, 1992). Similarly, focussing on work and disallowing non-work interruptions might achieve similar aims.

H1. *Conscientiousness will be positively related to a) work-nonwork interruptions and b) negatively related to nonwork-work interruptions.*

Dutifulness is a facet of conscientiousness and is associated with adherence to ethical principles and moral obligations and a person scoring highly in dutifulness is likely to be dependable and reliable in fulfilling their obligations (Costa & McCrae, 2006). Dutifulness has not been explored in depth in relation to boundary management, but it is likely to be particularly relevant when teleworking, because teleworkers are trusted to work with minimal guidance and observation (Chen & Nath, 2008, Raiborn & Butler, 2009 and Baruch, 2000). Success as a teleworker, requires being able to adhere to working practices and doing this naturally and without significant effort would be of benefit. As people who are highly dutiful are likely to carry out their obligations without external guidance, it might be expected that when teleworking they will focus on their work and their duty toward it might predispose them to being more open to work interruptions. Likewise, a feeling of duty towards work might make them less likely to allow non-work interruptions.

H2. *Dutifulness will be positively related to: a) work-nonwork interruptions and b) negatively related to nonwork-work interruptions.*

2.7.1.2 Extraversion and the Facet of Gregariousness

Extraversion is associated with assertiveness, being talkative, active, seeking out stimulation from the external world and experiencing positive emotions (Watson & Clark 1997, Chamorro-Premuzic 2007 and Costa & McCrae 2006). In a teleworking context which is typically more isolated (Morganson et al., 2010) an extraverted person might find it difficult to be away from others while working and lack the stimulation which they typically seek out. This being the case, they may be more open to interruptions from non-work while working, as a source of stimulation and to reduce boredom. As extraverts engage in more and a wider range of leisure activities (Lu & Chia-Hsin, 2005) this would not necessarily be the case outside of work and they would not need to pursue stimulation from the work sphere while they are not working.

H3. *Extraversion will not be related to a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.*

Gregariousness is a facet of extraversion and is the core component of enjoying the company of others and in particular; the more people, the more enjoyable it is for a highly gregarious person (Costa & McCrae, 2006). This being the case, it could be particularly active in the more isolated environment that the teleworking context brings (Morganson et al., 2010). A gregarious person might find it difficult to work alone and may be more susceptible to allowing or creating people based interruptions from non-work, to create opportunities to communicate with others. Studies have shown that sociable individuals' job performance is lower in a teleworking context than a traditional working environment (O'Neill et al., 2009a) and this could be related to poor person environment fit, with the individual engaging in non-work related activities to cope with the environment, which in turn reduces their performance. If an individual were highly gregarious, they would not necessarily need to do the same outside of work, because they could be as sociable as they like and would not need to create this from the work sphere.

H4. *Gregariousness will not be significantly related to a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.*

2.7.1.3 Neuroticism and the Facet of Impulsiveness

Neuroticism is associated with emotional sensitivity and instability, a tendency to worry and experience negative emotions (Chamorro-Premuzic, 2007 and Quevedo & Abella, 2011). People scoring highly in neuroticism are likely to experience physical symptoms more readily, such as increased heart rate due to having a more active autonomic nervous system (Eysenck, 1994) meaning that it might be more difficult for them to wind down from activities and therefore they may carry their experience from one activity into the next. Little research has been conducted into the effects of neuroticism on the work/nonwork boundary. However, neuroticism is linked to ruminating (Perkins et al., 2015), and rumination has been found to be a form of work/nonwork interruption (Montgomery et al., 2009) as an individual may continue to think of the troubles of one sphere while occupying the other. The tendency to worry about either sphere could lead to interruptions between both, as they are carried across the boundary and the individual may be prompted to respond to either work or non-work tasks to relieve anxiety that the worrying causes. Neuroticism has also been found to be correlated to procrastination (Watson, 2001), which could lead to higher boundary

integration as the individual may engage in work or non-work tasks that were delayed, an example being continuing to work after hours to complete work that has not been finished.

H5. *Neuroticism will be positively related to a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.*

Impulsiveness is a facet of neuroticism and is related to urgency, sensation seeking and having low tolerance for frustration (Billieux et al., 2008). This component of neuroticism is likely to be very important, because a person scoring highly in impulsiveness might find it difficult to stop themselves from doing things that they want to do, even though they know that doing it may be to their detriment (Costa & McCrae, 2006). Impulsiveness may be related to work/nonwork interruptions, particularly in a teleworking context where there is a high degree of autonomy or lack of external control on working conditions (Morganson et al., 2010). If a person finds it difficult to refrain from acting on impulse and they are working from home without external cues that might inhibit impulsive behaviours, it could be very difficult to manage and keep the spheres separate whether or not they wanted to.

H6. *Impulsiveness will be positively related to a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.*

2.7.2 Personality Traits and ICT Use

Studies have focussed on personality traits and whether these are involved in problematic ICT use (Bianchi & Phillips 2005 and Jung-Yeon et al., 2014), and in non-work environments (Butt & Phillips, 2008, Ehrenberg et al., 2008, Phillips et al. 2006, and Lane & Manner, 2011). Few studies have considered actual ICT use in a work environment and the following hypotheses will explore actual ICT use for work purposes, in a home-based teleworking context.

2.7.2.1 Conscientiousness and the Facet of Dutifulness

Conscientiousness was negatively correlated to internet usage in college students (Landers & Lounsbury, 2006), and negatively related to excessive internet use and texting (Buckner et al., 2012), it is also related to spending less time talking on the phone and having fewer missed calls (Chittaranjan et al., 2013). These studies suggest that conscientious people may use their ICT's efficiently and avoid wasting time with it outside of the work sphere. As highly

conscientiousness people display characteristics of being highly organised and structured in their work practices (Barrick & Mount, 1991), it might be expected that they would avoid unnecessary ICT use to be more efficient. However, as conscientious people can be very ambitious in their work (Howard & Mitchell-Howard, 2001), they may be very proactive in using it when they need to and responsive to it, to ensure that work is done in a timely manner. It might be expected that their ICT use for work may be different from that expressed in non-work, due to the importance that they place into the work sphere.

H7. *Conscientiousness will be positively related to frequency of technology usage for work purposes.*

Dutifulness involves adhering to moral obligations and being governed by one's own conscience (Costa & McRae, 1992). It is an 'other-centred' trait with high scorers acting in the best interests of the organisation (Moon, 2001), so it might be expected that a highly dutiful person being concerned with the needs of the organisation, might use ICT's for work purposes frequently, as they may wish to be connected to work and available for incoming demands.

H8. *Dutifulness will be positively related to frequency of technology usage for work purposes.*

2.7.2.2 Extraversion and the Facet of Gregariousness

Extraversion is related to problematic mobile phone use (Billieux, 2012) and to using mobile telephones to reduce boredom (Phillips et al., 2006) which might be expected, considering the greater need for stimulation of people scoring highly in extraversion (Cooper, 2015). Teleworking from home and being separated from the hubbub of a typical office or the activity of non-work time, high scorers may be less stimulated and become more easily bored. Mobile technology and its features could become a means with which to reduce experienced boredom (Phillips et al. 2006) and provide stimulation, or as a means to contact others.

H9. *Extraversion will be positively related to frequency of technology usage for work purposes.*

Gregariousness is a facet of extraversion and the key component of the social element of it as high scorers actively seek out the company of other people and have a high need for social stimulation (Costa & McCrae, 2006). Extraversion is correlated to the number of text messages received, the number of different contacts on an individual's phone, the number of phone calls received and the length of time talking on the phone (Chittaranjan et al., 2013).

This shows that extraversion is related to using mobile telephones in a way that expresses their gregariousness and their openness to engage with other people. It is thought that high scorers might display this behaviour due to a need to communicate with others and make potential new friends (Billieux, 2012). However, there is no evidence that they use their mobile phones to initiate calls to other people more frequently (Butt & Phillips, 2008), indicating that they might prefer to communicate face to face with people and do not rely on their phones to create opportunities to socialise in an everyday context. However, in a teleworking context, people scoring highly in gregariousness would be more isolated (Morganson et al., 2009) than usual and mobile technology could be a resource with which to connect with others and reduce loneliness.

H10. *Gregariousness will be positively related to frequency of technology usage for work purposes.*

2.7.2.3 Neuroticism and the Facet of Impulsiveness

Neuroticism is related to problematic mobile phone use (Billieux, 2012) and is positively correlated with sending more text messages (Butt & Phillips, 2008) and emails (Lane & Manner, 2011). These studies suggest that it may be a more comfortable way to communicate, or it may assuage relationship anxiety and provide reassurance; prompting the individual to use the mobile phone more frequently to meet these needs (Billieux, 2012). Nevertheless, neuroticism is also related to using fewer words in electronic messages (Chittaranjan et al., 2013) and using text messaging less frequently (Ehrenberg et al., 2008) indicating that they may be reducing the amount of contact time with others. So, there are mixed results for the influence of neuroticism on ICT use, but people scoring highly in neuroticism often take on reactive rather than proactive strategies to deal with problems and use avoidance coping strategies (Gomez, Holmberg, Bounds, Fullarton & Gomez, 1999). In a home-based telework context, high scorers in neuroticism may use ICT's less frequently as a means with which to avoid people or potential conflict.

H11. *Neuroticism will be negatively related to frequency of technology usage for work purposes.*

Elevated mobile phone use is related to facets of impulsivity (Billieux et al., 2008). This may be expected considering the urgency that impulsive people feel to take action and do what they desire to do (Frijda, 2010 and Billieux, 2012). High scorers in impulsiveness may find it more difficult to stop themselves from using their ICT's, particularly features on smartphones if they wish to. This could be particularly expressed through checking for incoming messages or being kept up to date.

H12. *Impulsiveness will be positively related to frequency of technology usage for work purposes.*

2.7.3 ICT Use and the Work/Nonwork Boundary

The use of technology, particularly mobile telephones has been linked to a culture of being switched on 24 hours a day, seven days a week (Prasopoulou et al., 2006) and blurring the boundary between work and non-work (Montgomery et al., 2009). Chesley (2005) found that mobile telephones were related to boundary blurring but not PC's. However, other studies have shown that individual differences play a role in how people use their ICT's and they do not necessarily feel forced into using it outside of working hours (Boswell & Olson Buchanan, 2007). In exploring the relationships between personality and the work/nonwork boundary and personality and ICT use, it is necessary to also investigate the relationship between ICT use and work/nonwork boundary interruptions to see the whole picture between the variables in Study One. Portable technology such as smartphones and laptops are so easily accessible, making it very easy to check and send emails, text messages and phone calls at any time (Den Nagy, 2014 and Matusik & Mickel, 2011). It might be the case that frequent use of mobile technology will increase boundary blurring and enable boundary interruptions particularly from work into the nonwork sphere.

H13. *Frequency of technology use will be positively related to work-nonwork interruptions.*

2.8 A Summary of the Research Questions and Hypotheses for Part One of the Study

Table Eight below illustrates the 13 hypotheses and the relationship of each one to the research questions which will be explored in Study One.

Table 8: The Research Questions and their Associated Hypotheses

Research Question	**Hypotheses**
1a. Are there relationships between personality traits and the way that people manage their work/nonwork boundary (specifically interruptions between spheres)? If so, what is the nature of the relationship?	**H1.** Conscientiousness will be: a) positively related to work-nonwork interruptions b) negatively related to nonwork-work interruptions.
	H2. Dutifulness will be: a) positively related to work-nonwork interruptions b) negatively related to nonwork-work interruptions.
	H3. Extraversion will: a) not be related to work-nonwork interruptions b) positively related to nonwork-work interruptions.
	H4. Gregariousness will: a) not be related to: work-nonwork interruptions b) positively related to nonwork-work interruptions.
	H5. Neuroticism will: a) be positively related to work-nonwork interruptions b) positively related to nonwork-work interruptions.
	H6. Impulsiveness will: a) be positively related to work-nonwork interruptions b) positively related to nonwork-work interruptions.
1b. Is there a relationship between personality and technology use? If so, what is the nature of the relationship?	**H7.** Conscientiousness will be positively related to frequency of technology usage for work purposes.
	H8. Dutifulness will be positively related to frequency of technology usage for work purposes.
	H9. Extraversion will be positively related to frequency of technology usage for work purposes.
	H10. Gregariousness will be positively related to frequency of technology usage for work purposes.

	H11. Neuroticism will be negatively related to frequency of technology usage for work purposes.
	H12. Impulsiveness will be positively related to frequency of technology usage for work purposes.
2. Is there a relationship between technology use and work/nonwork boundary management (specifically interruptions between spheres)? If so, what is the nature of the relationship?	**H13.** Frequency of technology use will be positively related to work-nonwork interruptions.
3. What is the overall relationship of the three sets of variables (personality, work-nonwork boundary and technology) together?	Explored through regression analysis after hypothesis 1-13 have been tested.

Section 2.7 has provided a rationale and explanation of the development of the hypotheses that will be explored in Study One, finishing with a summary in Table Eight, giving an overview of how the hypotheses are linked to the research questions in Study One. The next section, will briefly discuss Study Two, before Section 2.10 provides a summary of Chapter Two as a whole.

2.9 Qualitative Study Two

The literature review has shown a need for a qualitative study that can use a flexible method with which to explore several specific issues related to boundary management in a teleworking context. Firstly, the review of the literature shows that the way that people manage their boundaries is due to both situational and dispositional influences which are also likely to interact (see Section 2.4). As boundary management is highly individualised, a qualitative study may be one way to dig deeper into the similarities and differences between individuals' boundary management practices. Secondly, studies have explored the nature of segmentation and integration preferences in relation to the boundary management choices that individuals make, especially with their ICT use (Derks et al., 2016 and Piszczek, 2017). However, Mustafa & Gold (2013) point out that the segmentation-integration paradigm was inadequate to explain some of the differences in the way that teleworkers actively managed their boundaries. Study One offers a way in which individuals can be categorised into boundary management groups that go beyond segmentation and integration, to include

other types of preferences based on their survey scores. The survey data of the participants who opted to participate in an interview will be analysed and each participant will be placed into one of nine boundary management groups based on their scores on the work-nowork interruptions and nonwork-work interruptions scales from Kossek et al.'s (2012) WorkLife Indicator Scale[2]. This will create categories based on the extent of reported interruptions between spheres, for example whether individuals have low, moderate or high work-nonwork interruptions and vice versa for nonwork-work interruptions. This enables the development of boundary management preference groups which go beyond the segmentation and integration poles. The process of developing these categories and a rationale for why these are important can be found in Sections 5.5.5 to 5.5.6 and Table 20 in Section 5.5.5, page 182, shows each of the nine possible boundary management categories based on reported interruptions between spheres.

Therefore, Study Two will not use the six groups developed by Kossek (mentioned earlier in Section 2.3.2), as her groups also contain boundary control and identity factors, as well as interruptions to place individuals into groups. So, this study will use two scales from the WorkLife Indicator measurement tool (Kossek et al., 2012), to measure interuptions between spheres, but not the categories associated with the scale. The aim of the newly developed categories in this study, is to focus more specifically on interruptions and the behaviours that create them. After the creation of these groups, Study Two will explore the nature of the boundary management strategies of individuals within these different groups, to add to the knowledge on different types of boundary management preferences that have been neglected. In addition to this, Study Two aims to explore in greater depth some of the findings of Study One. The development of the qualitative research questions and in-depth rationale for Study Two will be covered in greater depth in Chapter Four, Section 4.7 after the findings of Study One are discussed to show the development of the research questions out of these findings. Chapter Three also discusses the mixed methods nature of this study in greater detail.

[2] Permission to use the WorkLife Indicator (Kossek et al., 2012) to measure work-nonwork and nonwork-work interruptions was granted by the author.

2.10 Chapter Summary

The literature review has shown that there are a number of gaps in the literature. More specifically, several studies have assessed the relationship of ICT use to work-nonwork boundary management and have shown that they can blur the boundary between work and non-work. However many of these studies are related to older technologies such as PDA's and mobile phones and only a handful take place in a specific teleworking context. As the teleworking context is a particularly unique one, that relies upon the individual setting up the environment themselves and with little external supervision, it may be interesting to explore further. This study will assess the relationship of ICT use to the work-nonwork boundary in Study One through quantitative research question two and Hypothesis 13. It will further contribute by specifically assessing whether the boundary management preferences of individuals also influence the way that ICT's are used in relation to the boundary in a teleworking context in Study Two. This goes beyond similar studies (Derks & Bakker, 2014 and Derks et al., 2014) to look beyond segmentation and integration preferences and into other preferences that have not been so thoroughly addressed in the literature, through qualitative research question three (the qualitative research questions can be found in Section 1.3).

Several studies have assessed the relationships of personality traits to the way that individuals use ICT's, but these have predominantly been in non-work contexts and studies of young people and students' problematic use. These studies have shown that extraversion, conscientiousness, neuroticism and impulsiveness are particularly important in ICT use in these groups. However, there is a lack of research into the effects of personality on non-problematic usage of ICT's in a work context, which Study One will address through quantitative research question 1b and hypotheses seven to 12. In addition to this, no known studies specifically explore the relationship of personality traits to work/nonwork boundary interruptions and these will be explored through quantitative research question 1a, hypotheses one to six and qualitative research question two. Now that the literature has been reviewed and the need for a study has been addressed, Chapter Three will explore the mixing of quantitative and qualitative methods as a way to answer the research questions in this study.

Chapter Three
Study Design

3.1 Introduction

This Chapter will explain the rationale for using mixed methods in this study. In particular, quantitative research questions one to three were interested in assessing whether there were relationships between personality, ICT use and the work/nonwork boundary and if so what the nature and strength of these relationships were. However, these questions were not able to assess the more nuanced relationships between these factors and how they may function between individuals with different preferences. Qualitative research questions one to three served to explore this. Section 3.2 of this Chapter will firstly explore some of the advantages to using a mixed methods design and why it might be advantageous for this study. Section 3.3 will then explain the mixed methods approach used in this study and how it fits into the sequential quantitative-qualitative design model (Onwuegbuzie & Teddlie, 2003). Section 3.4 will then discuss the importance of integrating both parts of a mixed methods study and will show how they were integrated in this study. Section 3.5 then explains the procedure of this mixed methods study before Section 3.6 provides a summary of the whole Chapter.

3.2 Advantages to using a Mixed Methods Design

Mixed methods research arose in the 1960's following the increased popularity of qualitative research methods and since this time has become more popularly used in psychology and organisational studies (Leech & Onwuegbuzie, 2009). The number of studies using mixed methods, including in journals has increased and it has rapidly become a '*third paradigm for research*' (Denscomb, 2008). In this mixed methods study, the first phase used a quantitative survey design and explored the chosen personality, ICT and work-nonwork variables to assess a) if a relationship between these variables existed and b) if a relationship did exist, what was the nature and strength of these relationships. After establishing answers to these questions, the second phase used a qualitative, interview design and sought to explore the most significant aspects of the findings further. So Study Two built on the findings of Study One

and the benefits of this are that it enabled an in-depth qualitative exploration of the topic, informed by the quantitative study (Bryman & Bell, 2011 and Tashakkori & Teddlie, 1998).

This study takes a 'complementary strengths' paradigmatic stance (Teddlie & Tashakkori, 2010), where the quantitative and qualitative methods are separate and the strengths of both were utilised. The quantitative provided an exploration of the overarching patterns and relationships between personality, ICT use and work-nonwork boundary. The qualitative allowed analysis that the quantitative could not provide, such as an in-depth assessment of individual differences present within these overarching patterns. This study joins together both quantitative and qualitative research in a single study, where both are '*mutually illuminating'* (Bryman & Bell, 2011, p628) and contribute to the understanding of the other. Therefore, another strength to this design, is that after analysing both sets of data separately, a comparison of both the qualitative and quantitative datasets were made to give a broad overview of the entire data. So brought together, they give a better understanding than one method could bring on its own (Cameron, 2011 and Bryman & Bell, 2011). An in-depth explanation of how Study One leads in to Study Two is located in Chapter Four, Section 4.7 and it is better placed there after the Study One findings have been reported, as this explains more fully how Study Two is built upon the findings of Study One. Criticisms of mixed methods studies include that using contrasting paradigms in one study are incompatible and these criticisms are addressed further in Chapter 6, Section 6.5 where both studies are discussed in synthesis.

3.3 Mixed Methods Design

In mixed methods research, the quantitative and qualitative can occur sequentially or in parallel, with one being dominant or both equal (Rocco, Bliss, Gallagher & Perez-Prado, 2003). This study uses a 'sequential quantitative-qualitative' design (Onwuegbuzie & Teddlie, 2003) with the quantitative phase taking place first followed by the qualitative (Driscoll, Appiah-Yeboah, Salib & Rupert, 2008). A study with a similar design by Wajcman and Martin (2002) uses a quantitative survey to reveal similarities between males and females working experiences, followed by qualitative interviews to explore their narratives. Leech & Onwuegbuzie (2009) created a typology of eight mixed methods research designs based on three factors: a) the level of mixing, b) time orientation and c) emphasis of approaches. The

level of mixing relates to whether the quantitative and qualitative are fully or partially mixed (based on how many times throughout the study the mixing takes place). Time orientation is whether the quantitative and qualitative are concurrent or sequential and the emphasis of the approach is whether they have equal significance or if one is dominant. These three factors combine to create eight possible mixed methods research designs shown in Table Nine below.

Table 9: Typology of Mixed Methods Research Designs

	Level of Mixing	**Time Orientation**	**Emphasis of Approach**
1	Partially Mixed	Concurrent	Equal Status
2	Partially Mixed	Concurrent	Dominant Status
3	Partially Mixed	Sequential	Equal Status
4	Partially Mixed	Sequential	Dominant Status
5	Fully Mixed	Concurrent	Equal Status
6	Fully Mixed	Concurrent	Dominant Status
7	**Fully Mixed**	**Sequential**	**Equal Status**
8	Fully Mixed	Sequential	Dominant Status

(Table based on the typology created by Leech & Onwuegbuzie, 2009).

The research design of this study, is similar to number seven highlighted in Table Nine. It has 'full' mixing rather than partial, because the methods are mixed at more than one stage; firstly, the interview participants were chosen based on their survey scores. Secondly, responses to some items from the survey were used as prompts during the interview and thirdly, mixing was present where the results are drawn together in Chapter Six (Leech & Onwuegbuzie, 2009). The time orientation is sequential because the quantitative study was completed first, followed by the qualitative and it has an equal emphasis of approach with the qualitative and quantitative components being equally significant.

3.4 Integrating the Components of Mixed Methods Research

Mixed methods research is not merely about collecting two types of data (Creswell, 2015) and this study aimed to integrate the quantitative and qualitative according to the five hallmarks

of mixed methods research discussed by Tashakkori & Creswell (2007). How each of these five points were addressed in this study are discussed below.

1) ***The research should have a need for mixed methods with clear interconnected components of the qualitative and quantitative where it is clear how the two are connected.*** In this mixed methods study, the two components intersect at the data collection stage of the study. Firstly, the participants in Study Two were selected from a pool of volunteers based on their participation in Study One. The participants were categorised into groups for interviews based on their survey scores, so the selection process for the qualitative study was based upon the survey results and the interviews could not have taken place without the survey. This participant selection method enabled a more focussed analysis on the nature of boundary interruptions between people with different boundary management preferences, beyond segmentation and integration. So Study One opened up an avenue for the exploration of the differences in boundary management that was subsequently explored in qualitative research question one. Secondly, some questions in Section Eight of the survey (see Appendix 2.8, page 347) were designed to retrieve answers that could provide prompts and probing during the interviews, if necessary to obtain better quality interview data. Thirdly, the data collected for the interviews was based upon the findings from Study One and designed to explore these findings in greater depth which also links the two together. For example, the findings of Study One in relation to personality, explored through quantitative research question 1a (discussed in Chapter Four, section 4.5.2 and 4.5.3) raised further questions about the significance of personality traits and what other factors beyond personality might be involved in boundary management. This led to the development of qualitative research question two which was assessed through Study Two. Similarly, the significance of ICT's to the work-nonwork boundary as examined in quantitative research question 1b led to the development of qualitative research question three. This was designed to explore how ICT use and boundary management overlap with boundary management preferences and to explore beyond the correlations of Study One. This fed into the overarching research question and facilitated a more fine grained response to this question. Fourthly, the two components merge in the discussion in Chapter Six, when the results of both

studies are drawn together. Chapter Six shows how the second study builds upon the first and provides additional insights that would not have been found without using a different method. A full diagram showing both studies and the links between them is shown in Figure Three in Chapter Four, Section 4.7, page 172.

2) ***The research needs to be clearly and distinctly presented where the quantitative and qualitative aspects are presented and analysed independently.*** In this study, both aspects of the research are presented independently with quantitative Study One, presented in Chapter Four, followed by qualitative Study Two presented in Chapter Five. Both chapters contain their own methods, results and discussion sections, and were analysed using different methods, so each part of the study is separately analysed and presented in their own right. After they have been handled separately, a discussion of both together in Chapter Six will show what they achieved together and that a mixed methods approach enabled findings that would not have been possible in a single study.
3) ***The conclusions of the results of both parts should be made distinct in their own right.*** In this study, both parts contain an individual conclusions section which takes place at the end of each chapter. Chapter Four's conclusions draw together what can be drawn from the quantitative study and what the study told us about the relationships between the tested personality traits, ICT use and work/nonwork interruptions all of which are related to quantitative research questions 1a, 1b, two and three. These conclusions then lead in to mention its strengths, limitations and rationale for Study Two. At the end of Chapter Five, conclusions are made that show what can be understood from the data in relation to different boundary management preferences, practices and ICT use. Unexpected themes that were facilitated to emerge by the analysis of qualitative data, are also discussed. Therefore the conclusions of each study are dealt with separately in their own right.
4) ***The results of both parts should be integrated in a way that is more significant and wide-ranging than they would be alone.*** In this study, Chapter Six discusses the findings jointly and highlights the significance of the findings when drawn together. Specifically, discussion is had in regard to how using a mixed methods approach had benefits over using a single method approach for three reasons, firstly the second study supported Study One through similar findings in the participants survey scores

and the way they talked about their boundary management. Secondly, Study Two illuminated some of the findings of Study One, by building upon them to reveal a more in-depth picture, for example specific ICT use behaviours that could only be achieved through use of a different method. Thirdly, new insights into the nature of boundary management and some of its influences were found through the flexible approach of Study Two, which raised the potential that other traits not tested in Study One could also be a relevant to work/nonwork boundary management. So Chapter Six discusses how both studies are integrated and more wide ranging than they would have been alone.

5) ***An overarching research question with separate research questions for the quantitative and qualitative parts of the study.*** This study contains an overarching research question (see Chapter One, section 1.3), which is explored through the three quantitative research questions and hypotheses in Study One (see Chapter 2, Section 2.6.2) and then through three further research questions in Study Two (see Chapter 5, section 5.2).

3.5 The Procedure of the Mixed Methods Study

The design of the study and integration of the quantitative and qualitative, is covered in Section 3.4 and 3.5 above. This section will explain the order and structure of the mixed methods study, starting with Figure Two, page 110, a diagram of the procedure and then Table 10, page 111, which gives a more detailed overview of the procedure of the study.

3.5.1 Procedural Diagram for the Mixed Methods Study

Figure Two shows the procedure of this fully mixed, sequential, equal status (Leech & Onwuegbuzie, 2009) mixed methods study. This shows that the quantitative study was completed first, this informed the development of Study Two and then an assessment of how Study Two contributed to Study One took place.

Figure 2: The Procedure of the Mixed Methods Study

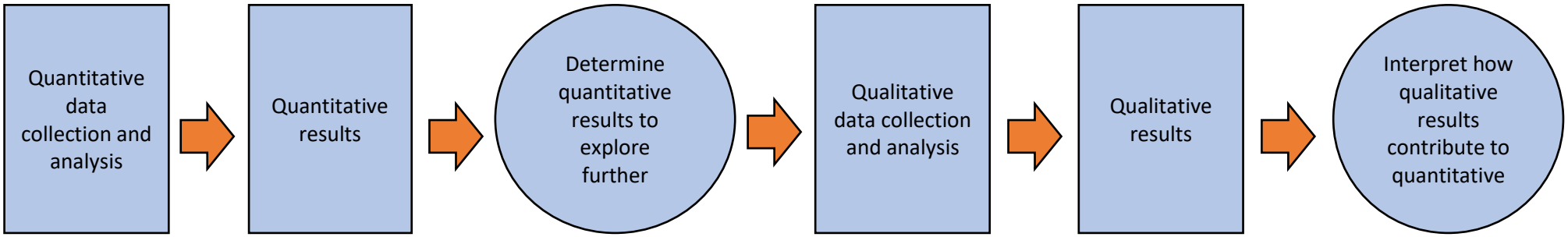


Diagram adapted from Creswell, p58, 2015

3.5.2 Procedural Table of the Mixed Methods Study

The procedures of the studies are explained in detail in the methods sections of Study One (Chapter Four) and Study Two (Chapter Five). Table Ten below shows the overarching procedure of the mixed methods study.

Table 10: Procedure of the Mixed Methods Study

	Procedures
Quantitative data collection	***Participants*** = adults working remotely from home ***N*** = 391 ***Data collection*** = online survey ***Variables*** = a) personality traits (extraversion, gregariousness, conscientiousness, dutifulness, neuroticism and impulsiveness, b) interruptions (work-nonwork and nonwork-work, c) frequency of ICT use
Quantitative data analysis	***1)*** Transfer data from 'Smartsurvey' into SPSS ***2)*** Clean database ***3)*** Descriptive results ***4)*** Inferential results
Qualitative data collection	***Participants*** = Four participants from five boundary management groups (based on survey responses) ***N*** = 20 ***Data collection*** = In-depth interviews ***Central phenomena*** = Boundary management
Qualitative data analysis	***1)*** Transcribe data ***2)*** Coding ***3)*** Develop template and refine themes ***4)*** Finalise template ***5)*** Complete frequency count ***6)*** Analyse boundary management behaviours of groups

(Table based on Creswell, p60, 2015).

3.6 Chapter Summary

This chapter has explained the underpinnings of the mixed methods study and shown that Study One was designed to gather an overview of the nature of the relationships between personality traits, ICT use and work/nonwork boundary management. This utilised the benefits of quantitative methods in explaining the bigger picture. Study Two was designed to

explore some of the unanswered elements of the findings of Study One and also to explore some of the nuances between individuals with differing boundary management preferences, beyond segmentation and integration. Study One paved a way with which to select participants based on their boundary management preferences and Study Two enabled this in-depth exploration which utilised the benefits of qualitative methods for assessing nuance. Now that an overview of the mixed methods study has been provided, Chapter Four, next will present the first part of this mixed methods study; Study One, which aims to contribute to quantitative research questions, one to three through the exploration of hypotheses one to 13.

Chapter Four
Study One
Personality, ICT Use and Boundary Management

4.1 Introduction

The literature discussing personality, ICT and work/nonwork boundary was covered in the Literature Review (Chapter Two) and this led to the development of a set of three quantitative research questions and 13 subsequent hypotheses designed to contribute to answering these three questions. A reminder of these research questions and how they are linked to the hypotheses can be found in Chapter Two, Section 2.8, Table Eight, page 100. The aims and objectives of Study One was to test these 13 hypotheses and to provide some contribution toward answering the three research questions. The main aim of Study One is to test the relationships between the personality traits (extraversion, gregariousness, conscientiousness, dutifulness, neuroticism and impulsiveness), ICT use and work/nonwork boundary interruptions.

This Chapter will present Study One, firstly Section 4.2 will outline the design of Study One, before Section 4.3 outlines the method that was used to collect data, that being an online survey and in particular how several challenges with using an online survey were dealt with. This section also includes discussion of the materials and measures that were used in the survey and the rationale for using these particular measures before coverage of the ethical considerations of the study. It then discusses the procedure and findings of the pilot study before the procedure of the main study. Section 4.4 outlines the statistical analyses that were used to test the hypotheses and Section 4.5 presents the results, firstly through Table 18, page 139, which gives an overview of the all of the results and whether or not they supported the 13 hypotheses and then by briefly reporting the non-significant results (Section 4.5.2) and then the significant findings (Section 4.5.3). Section 4.6 then discusses these results in relation to the literature reviewed in Chapter Two and also the limitations of the study, along

with possible future directions for research based on these findings. Section 2.7 summarises the Chapter as a whole and also provides a rationale for Study Two, linking the two studies together and also showing Figure Three, which is a diagram of the study as a whole and shows how Study One and Study Two are interlinked.

4.2 Design

This is a quantitative study from a positivist research philosophy which assumes that the social world can be studied in similar ways to the natural world and it follows a deductive approach where hypotheses are developed from theory and empirically tested (Ormston, Spencer, Barnard & Snape, 2013). As this study consists of 13 hypotheses that are to be tested, a positivist approach is particularly suitable because it facilitates methods that provide a way to test these hypotheses. The design of this study is cross-sectional, which is ideal for establishing relationships between several variables in one study (Howitt & Cramer, 2008) which this study does. An online survey was used as the data collection method and the strengths and weaknesses of online surveys as a method of data collection are varied and covered in depth in section 4.3. Utilising a survey is appropriate for this study, because it involves measuring personality traits which are typically measured by self-reported survey instruments (Cooper, 2015) and this is also an appropriate way to test the 13 hypotheses that were developed based on a review of the literature.

4.3 Method

This section will outline the methods used to conduct this study, including the rationale for the methods and instruments chosen and an explanation of the procedures used to carry out both the pilot and main studies. In the latter part it will also include information about ethics, the sample characteristics and data cleaning and handling procedures.

4.3.1 Data Collection Method: Online Survey

An online survey was used to collect data and these have the advantage of avoiding processing errors (Solomon, 2001), decreasing printing costs and garnering responses more quickly than paper surveys (Kaplowitz, Hadlock, & Levine, 2004). The online survey allowed data to be collected from geographically dispersed participants (Sue & Ritter, 2012),

important in this study, because teleworkers can be difficult to recruit in person. A dispersed participant group also allowed the inclusion of a range of different teleworkers and it was essential to have a wide spread of individuals with different personality traits and boundary management practices, to be able to answer the research questions well. The online survey opened recruitment to people uncontactable by other means. However, criticisms of online surveys as a method of data collection have been levelled and these criticisms will be discussed and responded to below.

4.3.1.1 Criticism One: Less Control Over the Data Collection Process can Lead to Mistrust of Participants and Duplicate Surveys

Data collection via the internet can lead to less control over the data collection process and participants. Specifically, there is some risk that participants can give misleading information which could not be checked in person and also that surveys could be completed more than once by the same person (BPS, 2013). Although this is the case, it is more significant for studies requiring rigid routines and control over environmental conditions that ensure consistency amongst participants. However, participants in this study completed a survey requiring no specific conditions, it could be completed flexibly at any place or time. There is no known reason why in this study a substantial portion of the sample would misrepresent themselves, or complete the survey more than once, especially considering that there were no incentives given. The data was also checked thoroughly prior to analysis, to identify anything that could cause problems with the analyses such as errors, extreme scores or inexplicable results. SmartSurvey also includes software that prevents duplicate surveys, so duplication risk was negligible.

4.3.1.2 Criticism Two: Issues with Nonprobability Sampling in Internet Studies

Sampling is an important part of any study, because it can affect the generalisability of the findings and different types of surveys can affect the nature of the sample achieved (Howitt & Cramer, 2008). According to Sue and Ritter (2012) there are two types of online surveys; 1) 'probability surveys' where there is some element of randomisation, such as participants being selected from a database or from visiting a particular website with participants derived from a sampling frame, so conclusions can be drawn about the characteristics of the

population the sample is derived from. 2) 'non-probability surveys' (most common of internet surveys) where there is no randomisation and participants self-select into the study. Non-probability sampling may or may not lead to data that typifies the population well. It can lead to self-selection bias wherein the survey attracts similar people, but those it does not appeal to might not participate (Sue & Ritter 2012). This study uses convenience sampling which is a 'non-probability survey' by posting the survey on teleworking websites, forums and online communities, so any teleworker who came across it could participate. This being the case, participants in the study were likely to be people interested in the topic, however their interest in telework would not necessarily have a detrimental impact upon the data.

There are two main sources of error in nonprobability samples similar to this study: 1) Coverage Error and 2) Nonresponse Error. Coverage Error occurs when the sample does not accurately reflect the relevant population because some people had no chance of being included. In online surveys, some people cannot access the internet, have weak signal coverage or are not comfortable with using computers (Sue & Ritter, 2012). If participant invitations are posted where the target population cannot access it, coverage is limited. However, in the current study, the target population are likely to possess good IT skills and have adequate internet access, as these are requirements for most teleworking roles. Care was taken to advertise the survey widely, including social media sites, posted on as many pages related to teleworking that were appropriate to post on. So, wide coverage was achieved through a variety of social media and non-social media avenues. Nonresponse Error arises when people are invited to take part, but choose not to, either through 1) 'unit nonresponse' where they do not participate at all and 2) 'item nonresponse' where they participate, but leave missing or unusable data. Those choosing not to participate could be substantially different to those self-selecting into the study (Sue & Ritter, 2012). Measures taken to reduce these errors are discussed next.

4.3.1.3 Reducing Unit Nonresponse

Security and data protection concerns of participants in internet surveys can be a significant source of participant non-take up and dropout (Sax, Gilmartin & Bryant, 2003), so it was highlighted on the website, information page and near the end of the survey (where an email address was requested for those wanting to participate in the interview), that data would be

treated confidentially, to reassure participants that data security was paramount. Many more people look at surveys than complete them (Porter & Whitcomb, 2003), website and survey design impacts upon participant response rates such as quick loading surveys garner more responses than slow loading (Dillman & Bowker, 2001) so the survey interface was kept simple, to prevent slow loading. Exclamation marks, punctuation marks in the title of an email, and images in the main body, can result in the emails going into spam (Singh, Taneja & Mangalaraj, 2009) meaning potential participants may never get the chance to participate, so these were avoided in the email invites. The survey was launched on a Tuesday, reminders sent on a Thursday and not during public holidays, all optimum times to garner good response rates (Singh et al., 2009). The survey was available in various different formats, including via mobile phone, tablet and laptop and through different browsers making it as widely available as possible (this is discussed further in Appendix 2.7, page 342). To maximise the response rate, reminders were sent to each source because this increases responses by 7-11% (Singh et al., 2009), but sending reminders has diminishing returns (Deutskens, de Jong, de Ruyter & Wetzels, 2006), so only one reminder, or one extra posting on each social media site was sent. This strategy did result in gleaning a few more responses from each source, that may not have been achieved otherwise.

4.3.1.4 Reducing Item Nonresponse

Long surveys are less likely to be completed due to fatigue (Sax et al., 2003 and Porter, 2004), as this survey contained many items, there was a choice of fewer pages and more scrolling, or more pages and less scrolling. Scrolling is quicker for the participant (Singh et al., 2009) and surveys with more pages have higher dropout (Sax et al., 2003) so fewer pages with some scrolling was chosen. Participants that started the survey and left an email address to complete later, were sent one reminder to increase the rate of completed surveys. The pilot study tested usability of the survey and changes were made to the fonts (Singh et al., 2009) and some items and response options to reduce inaccuracies and improve the completion rate (these are discussed in depth in Appendix 2.7, page 342). Emails sent were from a '.ac' address and social media postings stated the link to the University, to build credibility that the survey was genuine and not commercial, to encourage participation (Singh et al., 2009).

Although it is impossible to eradicate unit nonresponse and item nonresponse error, these steps were taken to reduce both types as much as possible.

4.3.2 Materials and Measures

A website was created to give an online presence containing a link to the survey. The survey was created using 'SmartSurvey' and advertised on social media platforms such as Facebook, LinkedIn and Twitter and also distributed to two Local Authorities, an Alumni newsletter and mailing list. The measures used are discussed below, including the psychometric properties and why they were chosen as measures.

4.3.2.1 Work/Nonwork Boundary Measures

The WorkLife Indicator (Kossek et al., 2012) was used to measure boundary interruptions and this contains 18 Items with 5 subscales measuring: 1) work interrupting behaviours (frequency of interruptions from the sphere of nonwork entering work (Items 1-5)), 2) nonwork interrupting behaviours (frequency of interruptions from the sphere of work entering nonwork (Items 6-11)), 3) Family Identity, 4) Work Identity and 5) Perceived boundary control. The scale consists of 17 items on a five point Likert Scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree). Participants are asked to read a statement and say how much they think the statement applies to them, for example*:* 'I take care of personal or family needs during work'. Only item three is negatively scored, all other items are positively scored. The WorkLife Indicator is normally used to calculate the scores of an individual for all five of the subscales and based on the scores individuals are categorised into a 'WorkLife style' created by the authors of the scale. The 'WorkLife style' describes succinctly, the work/nonwork boundary management preference of the individual. Each of the scales are summed and then based on each summed score being high, low or moderate, individuals are placed into one of six groups. These six 'WorkLife styles' are: 'Work warriors', 'Overwhelmed reactors', 'Family guardians', 'Fusion lovers', 'Dividers' and 'Nonwork-eclectics' and after receiving a category, individuals are provided with potential areas for improvement based on their style (Kossek & Lautsch, 2008). (See Appendix 2.1, page 335 for full details of the WorkLife Indicator Scale).

In this study, only two subscales measuring work-nonwork and nonwork-work interruptions were used. These two subscales represent a measure of boundary management behaviours,

the other three represent attitudes rather than behaviours (Kossek et al., 2012) and it was measuring the actual behaviours that were of importance in testing the hypotheses. The subscales were good measures of boundary practices, as Cronbach's Alpha calculations were run to test for internal consistency and both work-nonwork interruptions (.83) and nonwork-work interruptions (.73) reported good internal consistencies (DeVellis, 2003)[3].

4.3.2.2 Personality Measure: The Ten-Item Personality Inventory (TIPI)

The Ten-Item Personality Inventory (TIPI) (Gosling, Rentfrow & Swann, 2003) is a short measure of the big five personality traits. The most commonly used and robustly tested measure of the big five is the NEO PI-R which consists of 240 items and measures each of the five dimensions and their six facets (Costa & McRae, 2006), but this can be time consuming for participants. The TIPI contains ten items, two for each of the five traits on a seven point Likert Scale with responses ranging from 1 (Disagree Strongly) to 7 (Agree Strongly), with one item for each trait positively and one negatively scored, to cover each side of the polarities. The following is an example of the extraversion measure (but see Appendix 2.2, page 336 for all of the TIPI scale items):

I see myself as: Extraverted, enthusiastic

Reserved, quiet

The TIPI scale has been found to be robust for a short measure with good reliability and validity reported by its authors' Gosling et al. (2003) (see Appendix 2.3, page 337 for a full account of its psychometric properties). Independent validation tests of the TIPI also found the factor structure robust with good convergent and criterion related validity to the five-factor model (Ehrhart et al., 2009 and Romero et al., 2012). Hofmans, Kuppens & Allik (2008) found the TIPI scale was psychometrically adequate when a short scale was needed due to time constraints; as in this case, where there was little contact with the geographically dispersed study population and the need for a large sample to adequately test the hypotheses. Checking for internal consistency between items was necessary because low consistency might indicate measurement error (Kline, 2000). Pearson *r* correlations were

[3] Based on DeVellis (2003) who defines an alpha coefficient of between .70 and .80 as 'respectable' and between .80 and .90 as 'very good'.

carried out to test for internal consistency on the TIPI items and the following coefficients were found: Extroversion (r = .62), Conscientiousness (r = .53) and Neuroticism (r =.54), which show moderate correlations[4].

The TIPI takes one minute to complete, its main advantage is that it provides a trait measure where a full inventory would be problematic. Lengthy surveys have lower response rates (Porter, 2004), so the TIPI is apt for this study because the total survey contains more than 100 items and the risk of fatigue is high. The TIPI adequately captures personality data, while encouraging completion and minimising frustration for participants (Muck, Hell & Gosling, 2007 and Gosling et al., 2003). The TIPI does not replace the NEO PI-R and in any shortened version of a scale the cost of using a short measure is the reduction in reliability and validity in comparison to the full-length scale, but short scales can be used if the psychometric costs outweigh the benefits (Woods & Hampson, 2005) and it does not automatically create a reduction in predictive validity (Gardner, Cummings, Dunham & Pierce, 1998). Overall, short scales are recommended for use when they are: 1) not used for individual level feedback and discussion 2) where there are time or space constraints, 3) where personality is not the only focus and 4) where succinctness is needed to make the research viable (Hofmans et al., 2008, Ehrhart, Holcombe Ehrhart, Roesch, Chung-Herrera, Nadler & Bradshaw, 2009, Rammstedt & John, 2007 and Romero, Villar, Gomez-Fraguela & Lopez-Romero, 2012), a short measure is apt for this study, as it matches these four criteria. The TIPI measures the 'broad' domains of the five factors, not the narrow traits, as with all shortened versions of the NEO PI-R, so any shortened version would have no advantage over the TIPI in this respect (Gosling et al., 2003). The selected narrow traits will be measured by the IPIP scales discussed next.

4.3.2.3 Personality Facet-Level Measure: The International Personality Item Pool Scales (IPIP)

The International Personality Item Pool (IPIP) Scales were used to measure the selected facet-level traits of gregariousness, dutifulness and impulsiveness. The IPIP website includes personality inventories for commercial and research objectives. It contains scales similar to commonly used personality scales, providing equivalents which are free to use, do not require

[4] Based on Dancey and Reidy (2004) who define a small correlation as 0.1-0.3, moderate as 0.4-0.6 and strong as 0.7-0.9.

permission and are easily accessible online (Goldberg, Johnson, Eber, Hogan, Ashton, Cloninger & Gough, 2006). The IPIP Scales contain equivalents for the NEO PI-R narrow traits (Costa & McRae, 2006) and provide an alternative measure of the narrow traits. The three IPIP scales used in this study were 'gregariousness', based on the NEO PI-R Extraversion Scale E2 'Gregariousness' (IPIP, 2014b). The IPIP 'Dutifulness' scale based on the NEO PI-R Conscientiousness Scale C3 'Dutifulness' (IPIP, 2014a). Impulsiveness is measured by the IPIP 'Immoderation' scale, based on the NEO PI-R Neuroticism Scale N5 'Impulsiveness' (IPIP, 2014c)[5]. The three scales contain 10 items each, five negatively and five positively scored. Participants are given statements where they answer how accurately they think the statement describes them on a five point Likert Scale, with responses ranging from 1 (very inaccurate) to 5 (very accurate). (See Appendix 2.4, page 338 for the items in the IPIP narrow scales and Appendix 2.5, page 339 for the psychometric properties of the three IPIP narrow trait scales according to Goldberg (1999) in comparison to the NEO PI-R narrow trait scales).

The IPIP narrow trait scales were selected for this study because they have been previously used in similar work-based personality research, for example to explore the personality characteristics of IT professionals (Freed, 2014) and they correlate well to the NEO PI-R scales; between .67 and .76 (Goldberg, 1999). Independent studies found Alpha coefficients for the IPIP scales ranging from .79 to .93 (Fletcher & Nusbaum, 2008). In this study, Cronbach's Alpha's were calculated, finding good internal consistency: gregariousness (.87), dutifulness (.73) and impulsiveness (.78). A rationale for including narrow traits in this study can be found in Chapter 2, Section 2.6.1.

4.3.2.4 Single Item Measures of the Management Standards Indicator Tool

The Management Standards Indicator Tool (MSIT) measures six elements of work design, that if not managed well are associated with lower wellbeing and poor health (Kerr, McHugh & McCrory, 2009). It was developed by the Health and Safety Executive as a means to improve working conditions and reduce stress in UK workplaces and has been robustly tested and found to have sound psychometric properties (Brookes, Limbert, Deacy, O'Reilly, Scott & Thirlaway, 2013, Kerr, et al., 2009 and Edwards, Webster, Van Laar & Easton, 2008). As it is

[5] This scale is referred to as 'impulsiveness' in the NEO PI-R manual, but is referred to as 'immoderation' on the IPIP website although both are measures of the same trait.

robust and well established, it provides an appropriate measure to explore these elements of work design in the current study. Single items from this tool were used in the study to gauge working conditions and to identify if any of these factors were relevant to work-nonwork boundary management, because the MSIT components have been found to be related to work-life balance measures (Bridger, Dobson & Davison, 2016). Due to the potential for the variables that the MSIT measures (work demands, managerial support, peer support, relationships, role and change) to impact upon the work-nonwork boundary, these were analysed because of the possibility that they may need to be controlled for (see Appendix 2.6, page 340 for further information about the MSIT and the selection procedure to select a single item from each subscale). Single item measures such as those used to measure these items, have been found to be robust and useful compared to multiple-item measures, single-item measures were not outperformed and can be suitable to measure some aspects of relationships to work such as job performance (Gardner et al., 1998). They show adequate convergent validity to their full-length counterparts (Woods & Hampson, 2005). Wanous, Reichers and Hudy (1997) concluded that single item measures are acceptable for use when brevity is needed, or where participants might resent being asked repetitious questions. They may also prevent the disadvantages of an over long survey (Sax et al., 2003 and Porter, 2004).

4.3.3 Ethics

The study was carried out according to the BPS Code of Ethics and Conduct (2009), the BPS Code of Human Research Ethics (2010) and BPS Ethics Guidelines for Internet Mediated Research (2013). An ethics application was submitted and cleared through the Loughborough University human participants sub-committee. All participants were provided with an information sheet and gave informed consent (see Appendix 1.1, page 332) prior to participation in the study. All participants were over 18, the study was not aimed at vulnerable groups, did not involve deception and was not based around a particularly sensitive topic. Participants were informed that they were able to withdraw at any time during the data collection stage, including part way through completing the survey. Participants that dropped out part way through filling out the survey, did not have their data included in the analysis as it was considered that they had withdrawn their consent by not finishing and clicking the 'Finish Survey' button. Participants were allowed to skip questions

in the survey, to maintain their right to decline information and prevent participants from being forced to answer questions that they did not wish to answer (Singh et al., 2009). Once the data was submitted, the participants were given a date by which they could contact the researcher to withdraw if they wished and after that date it was not possible to withdraw from the study.

Contact details of the principal researcher were stated on the information sheet, study website and at the end of the study. Contact details for the Loughborough University research ethics office were also included on the information sheet and at the end of the study, providing for an independent reference point for participants. Once the data was collected it was downloaded into an excel document. Email addresses of participants opting for an interview were kept separately from the data, so no specific identifying features were left in the excel document. The email addresses were not shared with anyone for any other reason than contacting the participants about interviews. Downloaded data was stored on password protected devices.

4.3.4 The Pilot Study

The following section will explain the participants, procedure and results of the pilot study.

4.3.4.1 Pilot Study Part A

After creating the online survey and a website for the study, a pilot study was carried out to test the survey and receive feedback from participants.

4.3.4.1.1 Participants and Procedure of Pilot Study Part A

The pilot online study was conducted via the Bristol Online Surveys (BOS) platform and distributed to a convenience sample of people who worked at the University and teleworked and snowballed to others that they knew. Participants completed the survey and provided feedback about the instructions, items and usability. The feedback was analysed to make adaptations and improvements to the survey. 10 participants (six female), age range 31-59 took part in the pilot study. Three participants were single, six married/domestic partnership and one divorced. Six had no children under the age of 18, four had children (one or two)

under 18. Eight were employed and two self-employed. The majority (six) worked in the higher education sector. The average length of time working from home was *M* = 9.3 years.

4.3.4.1.2 Findings from Pilot Study Part A

Based on feedback from the pilot study, changes were made to the interface and improvements to increase usability for participants. Changes were made to some items to ensure the collection of high quality and usable data. These changes and adaptations made to the study based on the Pilot Part A are detailed in full in Appendix 2.7, page 342. After completion of the initial pilot study, it was clear that the BOS platform had some weaknesses in the interface, especially on grid style questions, where the questions and answers were not accurately in line and there was a potential for participants selecting an answer that they had not wanted to choose. Other potential survey platforms were explored and it was decided to use Smartsurvey for the main study instead, because it had a better constructed interface that was easier to use. It had a mechanism with which to trace where the survey had been sourced from, for example, whether it had come from LinkedIn, Twitter or Facebook. It was much easier to complete the survey by smartphone through SmartSurvey than BOS, opening up the possibility of gleaning more survey responses (further information about the choice of SmartSurvey over BOS can be found in Appendix 2.7, page 342).

4.3.4.2 Pilot Study Part B

A second pilot study was launched, to check the updated survey before the final launch. One person that completed the initial survey gave detailed feedback on the new survey, question by question with the researcher present and compared it to the original. Based on this, a few final adaptations were made which are detailed in Appendix 2.7, page 342. The survey was then tested to ensure its accessibility to as many people as possible. The main functions of the survey were tested; saving for later and coming back, dropping out at different stages to check the data was recording accurately. The survey was tested as suggested by Singh et al., (2009) from different laptops, PC's, a MacBook, an iPad, a Tablet, an iPhone and an Android Phone and on Google Chrome, Firefox, Safari and Internet Explorer. All functions of the survey worked on different browsers and the webpage and survey were searchable through

these browsers. Following these final checks the survey was made live and the following section explains the main study.

4.3.5 Main Study

The following section will explain the participants, procedure and results of the main study.

4.3.5.1 Procedure

Participants were recruited through the social media platforms of Facebook, LinkedIn and Twitter to complete the survey.[6] Searches were made to decide which groups to post in by using words such as 'teleworking', 'telecommuting', 'working from home', 'home working' and 'remote working'. All groups/pages found to contain these words were posted or sent invitations to complete the survey. Invitations were also sent to nine Local Authorities in the area, of which two Local Authorities agreed to take part and distribute the survey to their employees. An invitation for individuals to participate was also placed in the Loughborough University Alumni Newsletter, a mailing list and on the 'Workshifting' Blog (a Blog addressing flexible working issues). The survey was open for three months between mid-May and mid-August 2014. The steps taken to increase the completion rate are detailed above in Section 4.3.

4.3.5.2 Incentives

Incentives were not included for participation in the study because their effects on increasing the response rate are varied (Porter & Whitcomb, 2003, Kypri & Gallagher, 2003 and Kessler, Little & Groves, 1995).

4.3.5.3 Eligibility Criteria

To be included in the survey, respondents needed to be 18 or over and to work from home for some of their work time.

[6] See appendix 2.8, p347 for a full copy of the survey

4.3.5.4 Participants

This section will give an overview of the participants in the sample. The data collected resulted in 393 completed surveys of which 391 were usable. Table 11 below shows data relevant to the gender and country base of the participants.

Table 11: Gender and Country of Participants[7]

Gender	**Percentage**
Male	36%
Female	64%
Other	< 1%
Country	
UK based	56%
Non-UK based	43%

Due to recruitment for the survey being online, people resident in any country could potentially answer the survey. Although the majority were from the UK, a substantial portion came from outside of the UK, indicating that responses came from a wide range of teleworkers. The sample was approximately 2/3 female and 1/3 male and thus more heavily leans toward female teleworkers. Table 12 below shows the age ranges of the participants in the study.

Table 12: The Percentage of Each Age Group in the Study

Age group	**Percentage**
18-25	3%
26-30	11%
31-39	26%
40-49	28%
50-59	23%
60+	9%

[7] Note that when the percentages do not add up to a whole 100% it is due to missing data for that variable and the remainder is the missing data.

The spread of data in relation to age is a leptokurtic distribution with more participants being spread across the age ranges from 31 to 59. This might be expected in a group of teleworkers, because being able to telework requires a level of expertise to be able to complete tasks independently and this is often developed with age and experience. Table 13 below shows the relationship status and number of children the participants had.

Table 13: The Relationship Status and Number of Children Aged Under 18 of Participants

Relationship Status	**Percentage**
Married/domestic partnership	77%
In a relationship (non-cohabiting)	6%
Single	17%
Number of Children	
No children aged under 18	55%
1 child aged under 18	16%
2 children aged under 18	21%
3 or more children aged under 18	7%

The majority of people in the study were either married or in a domestic partnership and a limited number of single people participated. This study measured the number of children under 18 that the participants were responsible for. Direct childcare responsibilities were not an issue for more than half of the sample and this could partially be due to 1/3 of the sample being 50 or older, so some participants may have adult children that have left home. Table 14 below shows the data pertaining to the occupational background of the participants.

Table 14: Occupational Background of the Participants

Occupational Background	**Percentage**
Professional occupations	47%
Managers, Directors and senior officials	20%
Associate professional and technical occupations	21%
Administrative and secretarial	3%
Skilled trade	1%
Caring, leisure and other service	1%
Sales and customer service	1%
Students[8]	4%

[8] A number of participants were full or part-time students and working either full or part-time. Participants were categorised based on what their primary role was, so for example if they were part-time students and had a full-time job, or ran a business/consultancy, they were categorised as working within an occupation rather than as students.

Most participants were educated, specialist white collar workers showing that this sample is more focussed on these types of workers. However, as it is a sample of teleworkers, this would likely be the case as the role would typically involve frequent use of ICT's. This is discussed further in Section 4.6.9 in the Limitations Section of the report. Table 15 below shows information regarding the industries worked in by the participants.

Table 15: Industry Information Pertaining to the Participants

Industry	**Percentage**
Education and Research	22%
Technology	16%
Public sector	14%
Health and wellbeing	13%
Sales, marketing and customer services	9%
Media, publishing and writing	6%
Financial and property occupations	5%
Unknown sector consultants[9]	4%
Construction and engineering	3%
Leisure industry	3%
Non-profit/charity sector	2%
Food and manufacturing	2%

The participants came from a wide range of industries, giving a good spread of data from across people working in different spheres. Table 16 below shows the employment status of the participants and information related to their hours of work and length of time spent teleworking.

[9] These were consultants but it was not possible to establish which industry they worked in based on their completed surveys.

Table 16: Employment Status, Time Spent Teleworking and Working Hours of the Participants

Employment Status	**Percentage**
Employees	61%
Self-employed	28%
Self-employed and Employee	9%
Students	2%
Work Time and Hours	**Descriptive Statistics Information**
Length of time spent teleworking	Range = 1 month minimum, 40.5 years maximum, *M* = 7.5 years, *SD* = 86.8 months
Number of total working hours per week	*M* = 40 hours, *SD* = 12.04 hours
Number of hours working from home per week	*M* = 24 hours, *SD* = 14.26 hours

The majority of the sample were employees, while more than a quarter were self-employed. Some were a combination of both, meaning that they had more than one job, such as part-time employed work and part-time running their own business and 2% were Students.[10] A high proportion of the sample worked full time and most worked from home for a large proportion of their work time. This shows a sample of experienced teleworkers with the majority having worked in this way for a significant amount of time, suggesting that they are well placed to provide data on their working practices. The participants were recruited from a range of different sources and these sources and their percentage of the sample are displayed in Table 17 below.

Table 17: Participant Data Sources

Data Source	**Percentage**
LinkedIn	30%
Loughborough University Alumni	15%
Twitter	13%
Workshifting Blog	13%
Direct mailing list/email	12%
Local Authorities	10%
Facebook	5%
Other sources	2%

[10] People who did not state that they had other forms of employment.

So approximately 50% of the participants came to the study through social media sources.

Overall the participant group were predominantly female, professional workers, married or in a domestic partnership and between the ages of 31-59.

4.3.5.5 Participant Non-Completion Rate

126 participants dropped out prior to completion, 24% of the entire pool (520 individuals). The sample who did not complete the survey were analysed and 17 surveys, (13%), were completely blank, 39, (31%) completed the first page of demographics only, one, (1%) dropped out at the technology and communications questions, 11, (7%), at the 'about your work' questions, 25, (20%), at the work/nonwork boundary questions, 25, (20%) at the personality questions and 7, (6%) completed the survey but did not click 'Finish'. The most frequent drop-out point was immediately after demographics. Some of these participants may have not liked giving demographic information, however, according to Solomon (2001) drop-out rates on internet based surveys are most prevalent on the first question, followed by a page with a complicated question grid and thirdly when asked to supply an email address. The current study reflects this pattern with the majority of non-completion at the first set of questions and the second two most prevalent at the work/nonwork boundary and personality questions which were both question grids.

Chi Square tests were run on the sample who started but did not complete the survey to explore whether demographic characteristics influenced the point at which participants abandoned the survey. No significant results were found, indicating that fatigue due to the length of the survey may have been the main reason for participants' non-completion, along with typical expectations of drop-out (Solomon, 2001) stated above. Chi Square tests were run to compare the demographic variables of gender, age, country of residence, relationship status and number of children under 18 years old between the non-completers and completers. No significant results were found except for relationship status which was significant, χ^2 (*1*, *N* = 499) = 11.616, $p < .001$, indicating that single people were more likely to drop-out prior to completion than those in a relationship, this is discussed further in Section 4.6.9.

4.3.5.6 Data Preparation

This section will outline the data handling process, including data cleaning, transformations, Exploratory Factor Analysis, sample size, outliers, scoring and statistical significance levels.

4.3.5.6.1 Data Cleaning

The data were downloaded from Smartsurvey into an Excel document before being transferred into SPSS and all data were analysed using SPSS. Data cleaning is the process of identifying errors within the data, including: checking the data has been transferred correctly from its original source, data entry errors and checking for answers out of the possible range and correcting inaccuracies (Sue & Ritter, 2012 and Tabachnik & Fidel, 1996). The data was checked and corrected and the data in SPSS spot checked back to the original in SmartSurvey to ensure that the data in SPSS matched the original. Missing data was coded as missing rather than '0' which SPSS had populated it with automatically. Where the answer to some items was 'other' and a qualitative answer given, this was coded and placed into the most appropriate category based on the information given. A few items contained a N/A response option and data with this option was coded as missing (Sue & Ritter, 2012). Checks were made in relation to missing data to see whether there was any obvious pattern, such that participants had deliberately avoided answering certain items (Tabachnik & Fidel, 1996). No obvious pattern was found in the data, indicating that the missing data was random. Where there was missing data, it was excluded from the tests, rather than estimating what the missing data might have been (Tabachnik & Fidel, 1996), due to the large sample size there was still a good sample even with the missing data cases excluded.

Descriptive statistical tests including frequencies were run for each individual item to check for inaccuracies or inconsistencies. Two participants' data were removed due to one being blank and the other not working from home. New variables were created for the work/nonwork interruptions and personality variables to create composite variables based on the total scores (discussed below in Section 4.3.5.9 'Scoring of Multiple Item Scales'). Descriptive statistics such as Standard Deviations (*SD*) and Means (*M*) were checked to evaluate whether they were plausible, then exploring frequency distribution histograms and performing tests for normal distributions on the variables to establish the nature of the data, before proceeding with inferential statistical tests. Pearson correlations were carried out

between the TIPI Scale items for each subscale, along with Cronbach's Alpha calculations to test for internal consistency in the IPIP and work/nonwork interruptions scales.

4.3.5.6.2 Skewing and Transformation of the Variables

Some variables were skewed (see Appendix 3.1, page 363 and Appendix 3.2, page 364 for descriptive statistics and skew data for the main variables) and neuroticism and impulsiveness both displayed a moderate positive skew, indicating that a large proportion of the sample, scored to the lower end in these traits, or put another way were relatively emotionally stable and not particularly impulsive. Extraversion had a moderate, negative skew, indicating that a large proportion of the sample displayed a slightly higher tendency toward extraversion. Dutifulness had a substantial negative skew indicating that a large proportion of the sample had a tendency toward dutifulness. Conscientiousness was the most skewed variable, with a severe negative skew which showed a ceiling effect, or that many participants scored the highest possible in conscientiousness. A large proportion of the sample reported very high levels of conscientiousness. Work-nonwork interruptions had a moderate, negative skew, indicating that many in the sample displayed a reasonably high degree of work-nonwork interruptions. Nonwork-work interruptions were substantially, negatively skewed so a large proportion of the sample had a reasonably high degree of nonwork-work interruptions. Laptop usage had a severe negative skew and smartphones a negative, substantial skew, meaning that a large proportion of the sample used smartphones regularly for work and laptops very heavily.

On occasions where data is skewed, the data can be transformed to correct for the non-normal distribution, so that further testing is carried out on the transformed variables rather than the original skewed data (Field, 2013 and Tabachnik & Fidel, 1996). The skewed data was transformed using the formulas suggested in Tabachnik and Fidel (1996, 82), to test whether the skew could be rectified. After running these tests, the transformations made no significant difference. As parametric statistics provide more precise and accurate estimates than non-parametric and a large sample size mitigates the effects of non-normal distributions (Dancey & Reidy, 2004), the original variables were used for the data analysis (Appendix 3.3, page 364 shows the process of data transformation of the skewed variables).

4.3.5.6.3 ICT and Communication Variables

Frequency of ICT and communication usage both contained eight items each. The intention was to create two composite variables based on the scores of these added together with 1) frequency of ICT usage (containing the score of the eight items) and 2) frequency of communication usage (containing the score of the eight items). Exploratory Factor Analysis was conducted and a one factor structure could not be obtained on either variable. On the ICT variables, a three-factor structure was found with only frequency of laptop usage loading onto factor one (.90) indicating that it was a standalone variable. PC also loaded onto factor one at (-.84) and smartphone (.81) and mobile phone (-.72) loaded onto factor three. None loaded adequately onto factor two. The KMO measure of sampling adequacy was .52, below the recommended value of .60, indicating diffusion in the pattern of correlations and that Factor Analysis was likely not appropriate on the variables (Field, 2013). Some of the ICT variables seemed to be mutually exclusive rather than correlated to each other, for example the more a laptop was used, the less a PC was, which may have created difficulties in obtaining a one-factor solution. Field (2013) suggests excluding variables that are correlated at less than .30. Some of the items had significant negative skews, for example frequency of laptop and smartphone use (see Appendix 3.2, p364, for skewing information of the variables) so this significant skewing may also have interfered with the statistical procedure.

So it was not possible to create the composite variables, nor was it possible to explore each item individually as there were too many. After assessing the descriptive statistics for each item, few people used a netbook or smartwatch, so these were eliminated and as PC may be mutually exclusive to laptop and mobile phone and landline exclusive to smartphone, these were also excluded. The focus was then placed on 1) frequency of laptop usage, 2) frequency of tablet usage and 3) frequency of smartphone usage, as these are frequently used items in the sample and are commonly used by individuals in the workplace, so are of the most value for this study.

4.3.5.7 Sample Size

As the current study is based on nonprobability sampling it is difficult to estimate the sample size, because the population is unknown. The general guidance of Sue & Ritter (2012) was followed, that being: 1) no fewer participants than 30 or more than 500, 2) at least 10

participants for each variable being studied. An a priori power calculation was also conducted using GPower to determine the minimum number of participants required for an estimated effect size of $r = .2$, $\alpha = .05$, a minimum sample of 255 was required for a power of $1-\beta = 0.9$.

4.3.5.8 Outliers

The data was explored using boxplots to check for extreme scores or outliers. Outliers were found within the data and checked to see if there had been input mistakes or if there were some reason for these scores. No obvious reasons were found to explain the outliers. As the outliers were not deemed to exist due to error and there was nothing unusual about the outliers except for their extreme scores, they were left unchanged in the data (Dancey & Reidy, 2004).

4.3.5.9 Scoring of Multiple Item Scales

The WorkLife Indicator scales and the narrow trait scales are made up of multiple items. To calculate an overall score for these variables, either a summated score of each variable (average), or a composite score (total score of each item added together to give an overall score) could be used. Summative scoring has the advantage of being able to include more participants' data, because the average score means that participants with some missing data can still be included in the analyses. However, it can lead to losing the fine-grained responses of individuals between items and participants who answer across the scale items quite differently, can end up with the same summative score (Vogt, Vogt, Gardner & Haeffele, 2014). This being the case; composite scoring was used as this more accurately reflects how the participants answered each item within the scale as a whole. When composite scoring is used, where there is missing data on some of the items, the participant's data is removed automatically by SPSS to prevent distorting the results. Due to the large sample size, there was no issue with removing data of participants when there was missing data on some of the items. The minimum number of participants in the statistical procedures was 321 and the maximum was 383, so in the best case only eight participants were lost and in the most 66 were lost from the tests.

4.3.5.10 Statistical Significance

An alpha level of .05 was used for all statistical tests as this is the standard level conventionally used (Dancey & Reidy, 2004). Due to the number of variables being tested, there is an increased chance of a type one error, so the Bonferroni Correction was also run to protect against this. However as this test can also be very strict it can give a higher chance of a type two error (Field, 2013). All values up to a significance level of .05 were reported and the significance levels reported are actual (rounded to two decimal places), except for when the significance is .001 or less, where it is reported as $p < .001$.

4.4 Data Analysis

This section will outline the data analysis techniques employed to analyse the data, with the aim of exploring the hypotheses. The results of these analyses will be presented in Section 4.5.

4.4.1 Data Analyses Conducted to Test Hypotheses One to Six: Personality and Work/Nonwork Interruptions Variables

Pearson correlations were used to determine the relationships between the personality variables and work-nonwork/nonwork-work interruptions related to hypotheses one to six:

H1. Conscientiousness will be positively related to: a) work-nonwork interruptions and b) negatively related to nonwork-work interruptions.
H2. Dutifulness will be positively related to: a) work-nonwork interruptions and b) negatively related to nonwork-work interruptions.
H3. Extraversion will not be related to: a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.
H4. Gregariousness will not be related to: a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.
H5. Neuroticism will be positively related to: a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.
H6. Impulsiveness will be positively related to: a) work-nonwork interruptions and b) positively related to nonwork-work interruptions.

Pearson correlations were used as a standard measure to test the strength and direction of the relationships between the variables (Field, 2013) even though the data was not normally distributed. Spearman's Rho was not used, because this is more often used in small samples, but this study had a large sample size which mitigates against the effects of non-normal distributions (Dancey & Reidy, 2004).

The personality variables were also grouped into three categories of low, moderate and high, for example low conscientiousness, moderate conscientiousness and high conscientiousness to explore further the relationships between these variables and work-nonwork/nonwork-work interruptions, through ANOVA tests. Each set of variables was divided into three groups based on the *SD* of the scores, therefore the split was based on the distribution of the scores within the sample, not on external criterion of what represents low, medium or high scores. The variables were grouped so that ANOVA and Post-Hoc (Tukey HSD) tests could be carried out to check whether there were significant differences between the group means and to explore where these differences occurred, for example if there were differences between high and low scorers in each tested variable (Field, 2013). Grouping the variables in this way, meant that ANOVA's could be used to give a more detailed exploration of the personality variables and their effects on work/nonwork interruptions, such as whether there was a stepped type effect, or whether the differences were based on being very high or low scoring in a given trait. This in conjunction with the correlations gives a more fine grained response to the research questions. This is particularly relevant to the variables with significant correlations, because it enables a view of which parts of the continuum are more or less important in the relationship to the dependent variables. A disadvantage to grouping variables in this way is the loss of variance meaning that finding significant relationships is less likely. This was an additional measure, so where there was no significant correlation, ANOVA tests were not performed (Appendix 3.4, page 367 shows the grouping of these variables based on the *SD*).

4.4.2 Data Analyses Conducted to test Hypotheses seven to 12: Personality and ICT Variables

Pearson correlations were used to determine the relationships between the personality variables and frequency of ICT use related to hypotheses seven to 12:

H7. Conscientiousness will be positively related to frequency of technology usage for work purposes.
H8. Dutifulness will be positively related to frequency of technology usage for work purposes.
H9. Extraversion will be positively related to frequency of technology usage for work purposes.
H10. Gregariousness will be positively related to frequency of technology usage for work purposes.
H11. Neuroticism will be negatively related to frequency of technology usage for work purposes.
H12. Impulsiveness will be positively related to frequency of technology usage for work purposes.

ANOVA and Post Hoc tests (Tukey HSD) were also carried out on the grouped personality variables as above in the previous section and transformed into categorical data to enable a more detailed analysis of the effects of personality on ICT use. The Tukey Post Hoc test was used to tell where the significant differences between the groups were because although ANOVA can tell whether or not there are significant differences, it does not tell where the differences are. The personality variables that showed significant relationships to frequency of technology use were tested in this way as a follow up measure. Although categorical data is less flexible than continuous data (Field, 2013), the benefit of using this as a follow up to correlations, is that it may reveal more about the precise nature of the significant relationship. If categories had been used alone, the data analysis would have been more limited, but using this strategy as an addition retains the strengths of both and explains more about the relationships than one could on its own (Appendix 3.4, page 367 shows the grouping of the ICT variables).

4.4.3 Data Analyses Conducted to Test Hypothesis 13: ICT's and Work-Nonwork Interruptions

Pearson correlations were used to determine the relationships between the technology variables and work-nonwork interruptions related to hypothesis 13. ANOVA and Post-Hoc (Tukey HSD) tests were also conducted based on the high, moderate and low, smartphone,

tablet and laptop user groups as explained above. This facilitated a more precise exploration of the effects of ICT's on work-nonwork interruptions.

H13. Frequency of technology use will be positively related to work-nonwork interruptions.

4.4.4 Regression Analysis Based on Important Variables from Tests on Hypotheses One to Thirteen

After completing the above analyses to test hypotheses one to 13, the variables found to be most important and significant were tested in more depth using hierarchical linear multiple regression analysis. This is a linear model, where an outcome is predicted by two or more predictor variables and its analysis can go much further in exploring the relationships between multiple variables than simple correlation or ANOVA tests (Field, 2013). This makes it ideal for contributing toward answering the overarching research question: *'Do personality traits and ICT use influence how teleworkers manage their work-nonwork boundary?'* because the research question required isolating the main effects of the personality variables. This hierarchical linear regression analysis can give some answers towards how much of the variance of work-nonwork interruptions is provided by personality and ICT's and the role that they play in teleworkers' boundary management. Moderation and mediation analyses; possible alternatives, might have explored the effects of the relationships between the variables. However, this form of analysis was not selected because use of this analysis method has been criticised for potentially containing strong bias when used in cross-sectional data (Maxwell, Cole & Mitchell, 2011). In addition, regression analysis also has the advantage of taking control variables into account when analysing variance (Field, 2013), important in this case, as control variables were identified and included in the analysis. These will be discussed further in Section 4.5.6, along with the order of entry of the variables into the analysis.

4.5 Results

The results of the study that tested Hypotheses one to 13 are presented below in detail after Table 18 (page 139) which summarises the results of the study and whether the hypotheses were supported by the data. Following summary Table 18, the non-significant results are briefly reported first, before a more detailed presentation of the significant findings (a

correlation matrix which shows the correlations between variables in this section can be found in Table 35, in Appendix 3.5, page 368).

4.5.1 Results Summary Table

Table 18 below summarises the 13 hypotheses that were tested in this study and displays which of the hypotheses were and were not supported.

Table 18: Summary of the Results Related to their Hypotheses

	Hypothesis	**Results**
1	***Conscientiousness*** will be:	
a)	positively related to work-nonwork interruptions	Not supported (negatively related)
b)	negatively related to nonwork-work interruptions	Supported
2	***Dutifulness*** will be:	
a)	positively related to work-nonwork interruptions	Not supported (no relationship)
b)	negatively related to nonwork-work interruptions	Supported
3	***Extraversion*** will be:	
a)	not be related to work-nonwork interruptions	Supported
b)	positively related to nonwork-work interruptions	Not supported (no relationship)
4	***Gregariousness*** will be:	
a)	not be related to work-nonwork interruptions	Supported
b)	positively related to nonwork-work interruptions	Not supported (no relationship)
5	***Neuroticism*** will be:	
a)	positively related to work-nonwork interruptions	Supported
b)	positively related to nonwork-work interruptions	Not supported (no relationship)
6	***Impulsiveness*** will be:	

a)	positively related to work-nonwork interruptions	Not supported (no relationship)
b)	positively related to nonwork-work interruptions	Supported
7	***Conscientiousness*** will be positively related to frequency of technology usage for work purposes.	Not supported (no relationship)
8	***Dutifulness*** will be positively related to frequency of technology usage for work purposes.	Not supported (no relationship)
9	***Extraversion*** will be positively related to frequency of technology usage for work purposes.	Supported
10	***Gregariousness*** will be positively related to frequency of technology usage for work purposes.	Supported
11	***Neuroticism*** will be negatively related to frequency of technology usage for work purposes.	Supported
12	***Impulsiveness*** will be positively related to frequency of technology usage for work purposes.	Not supported (no relationship)
13	***Frequency of technology use*** will be positively related to work-nonwork interruptions.	Supported

4.5.2 Non-Significant Results

No significant results were found for the following hypotheses that explored personality traits and work/nonwork interruptions: hypothesis 2(b) for dutifulness and work-nonwork interruptions (p = .10), 3(b) extraversion and nonwork-work interruptions (p = .74), 4(b) gregariousness and nonwork-work interruptions (p = .98), hypothesis 5(b) neuroticism and nonwork-work interruptions (p = .08) or 6(a) impulsiveness and work-nonwork interruptions (p = .11). Similarly no significant results were found for the following hypotheses that tested the relationships between personality traits and ICT use for work purposes: hypothesis seven conscientiousness and frequency of usage of laptops (p = .34), tablet (p = .69) and smartphones (p = .85), hypothesis eight dutifulness and the frequency of usage of laptops (p = .79), tablets (p = .72) and smartphones (p = .38) and hypothesis 12 impulsiveness and the frequency of usage of laptops (p = .90), tablets (p = .80) and smartphones (p = .42) (more detailed information in regard to these results can be found in the correlation matrix in Appendix 3.5). These findings suggest that these hypotheses were not supported by the data. The next section will present the results of the hypotheses that were supported by the data and also hypothesis 1(a), which was not supported by the data, but did have a significant result that challenged the hypothesis. Hypotheses 3(a) and 4(a) will also be presented even

though they were not found to be significant, because these findings supported the hypotheses.

4.5.3 Significant Results

The significant results and results supporting the hypotheses will now be presented based on each individual hypothesis.

4.5.3.1 Hypotheses 1(a) and (b) Conscientiousness and Work/Nonwork Interruptions

A small, significant negative correlation was found between conscientiousness and work-nonwork interruptions, $r(365) = -.16$, $p = .01$, meaning that as values of conscientiousness increased between participants, values of work-nonwork interruptions decreased. There was a small significant effect[11] ($\eta^2 = .02$) of conscientiousness on work-nonwork interruptions, $F(2, 364) = 4.57$, $p = .01$. Post hoc comparisons using the Tukey HSD test indicated that the mean score for high conscientiousness ($M = 20.92$, $SD = 4.56$) was significantly different than low conscientiousness ($M = 18.53$, $SD = 5.69$). However, moderate conscientiousness ($M = 19.18$, $SD = 4.80$) did not significantly differ from either low or high. These results indicate that high reported conscientiousness effects work-nonwork interruptions; specifically, that people scoring high in conscientiousness are less likely to experience work-nonwork interruptions than low scorers, so the greatest difference was between high and low scorers. Taken together, these results suggest that hypothesis 1(a) is not supported and conscientiousness is not related to more work-nonwork interruptions because evidence for the opposite was found in the data.

A small, significant negative correlation was found between conscientiousness and nonwork-work interruptions, $r(368) = -.13$, $p = .01$, meaning that as values of conscientiousness increased between participants, values of nonwork-work interruptions decreased. There was a small significant effect ($\eta^2 = .02$) of conscientiousness on nonwork-work interruptions, $F(2, 368) = 3.46$, $p = .03$. Post hoc comparisons using the Tukey HSD test indicated that the mean score for high conscientiousness ($M = 18.80$, $SD = 2.79$) was significantly different than low

[11] Effect sizes were defined .01 small, .06 moderate and .14 large, based on Field (2013).

conscientiousness (*M* = 17.45, *SD* = 3.70). However, moderate conscientiousness (*M* = 18.11, *SD* = 3.33) did not significantly differ from either low or high. These results suggest that people reporting high in conscientiousness experienced less nonwork-work interruptions than low scorers, but moderate conscientiousness had less of an effect, the greatest difference being between high and low scorers. Taken together, these results suggest that the data support hypothesis 1(b).

4.5.3.2 Hypothesis 2(b) Dutifulness and Nonwork-Work Interruptions

A small, significant, negative correlation was found between dutifulness and nonwork-work interruptions, $r(357) = -.11$, $p = .03$ meaning that as values of dutifulness increased between participants, values of nonwork-work interruptions decreased. ANOVA calculations found no significant effect. Taken together, these results suggest that the data supports hypothesis 2(b), but that there is a small effect between the variables.

4.5.3.3 Hypothesis 3(a) Extraversion and Work-Nonwork Interruptions

No relationship was found between extraversion and work-nonwork interruptions $r(368) = .02$, $p = .65$. As no relationship was found, ANOVA tests were not run. These results suggest that hypothesis 3(a) was supported because, no relationship between the variables was found as was hypothesised.

4.5.3.4 Hypothesis 4(a) Gregariousness and Work-Nonwork Interruptions

No relationship was found between gregariousness and work-nonwork interruptions $r(355) = -.00$, $p = .984$. As no relationship was found, ANOVA tests were not run. These results suggest that hypothesis 4(a) was supported because no relationship between the variables was found as was hypothesised.

4.5.3.5 Hypothesis 5(a) Neuroticism and Work-Nonwork Interruptions

A small, significant positive correlation was found between neuroticism and work-nonwork interruptions $r(369) = .14$, $p = .01$ meaning that as values of neuroticism increased between participants, values of work-nonwork interruptions increased. ANOVA calculations found no

significant effect. Taken together these results suggest that the data provide some support for hypothesis 5(a), although there is a small effect.

4.5.3.6 Hypothesis 6(b) Impulsiveness and Nonwork-Work Interruptions

A small, significant positive relationship between impulsiveness and nonwork-work interruptions was found, $r(359) = .12$, $p = .02$, meaning that as values of impulsiveness increased between participants, values of nonwork-work interruptions increased. ANOVA calculations found no significant effect. Taken together these results suggest that the data supports hypothesis 6(b), although there is a small effect.

4.5.3.7 Hypothesis 9 Extraversion and Frequency of ICT Use

A small, significant positive correlation was found between extraversion and frequency of laptop usage, $r(379) = .12$, $p = .02$ and smartphone usage $r(364) = .16$, $p = .01$. Meaning that as values of extraversion increased between participants, values of smartphone use increased. ANOVA calculations were conducted to compare the effect of extraversion on frequency of laptop use, but no significant effect was found. However, there was a small significant effect ($\eta^2 = .02$) of extraversion on frequency of smartphone use, $F(2, 363) = 4.21$, $p = .02$]. Post hoc comparisons using the Tukey HSD test indicated that the mean score for low extraversion ($M = 3.05$, $SD = 1.42$) was significantly different than high extraversion ($M = 3.58$, $SD = 1.45$). However, moderate extraversion ($M = 3.49$, $SD = 1.37$) did not significantly differ from either low or high extraversion. These results suggest that people reporting high in extraversion used their smartphones more frequently than low scorers, but there is less of an effect for moderate scorers, meaning that the greatest difference was between people scoring high and low. Taken together, these results suggest that the data supports hypothesis nine.

4.5.3.8 Hypothesis 10 Gregariousness and Frequency of ICT Use

A small, significant positive correlation was found between gregariousness and smartphone use, $r\ (350) = .20$, $p < .001$ meaning that as values of gregariousness increased between participants, values of smartphone use increased. However, considering all of the potential factors that could influence smartphone use, the size of this correlation is reasonable. ANOVA

calculations found a small significant effect (η^2 = .04) of gregariousness on frequency of smartphone use, F (2, 349) = 7.98, p < .001. Post hoc comparisons using the Tukey HSD test indicated that the mean score for low gregariousness (M = 2.65, SD = 1.51) was significantly different than moderate gregariousness (M = 3.43, SD = 1.38) and high gregariousness (M = 3.67, SD = 1.40) although moderate gregariousness did not differ significantly from high. These results suggest that people reporting high in gregariousness use their smartphones more frequently with the biggest difference in effect being between low and high scorers. Taken together, these results suggest that the data supports hypothesis 10.

4.5.3.9 Hypothesis 11 Neuroticism and Frequency of ICT Use

A small, significant negative correlation was found for neuroticism and the frequency of smartphone usage r(365) = -.19, p < .001, meaning that as values of neuroticism increased between participants, values of smartphone use decreased. ANOVA calculations found a small significant effect (η^2 = .03) of neuroticism on frequency of smartphone use, F (2, 364) = 11.34, p = .004. Post hoc comparisons using the Tukey HSD test indicated that the mean score for high neuroticism (M = 3.60, SD = 1.41) was significantly different than low neuroticism (M = 2.82, SD = 1.47). However, moderate neuroticism (M = 3.33, SD = 1.38) did not significantly differ from either low or high neuroticism. These results suggest that people reporting high in neuroticism used their smartphones less frequently in comparison to people reporting low neuroticism with the biggest effect between low and high scorers. Taken together these results indicate that the data supports hypothesis 11.

4.5.3.10 Hypothesis 13 Frequency of ICT Use and Work-Nonwork Interruptions

A small, positive correlation was found between frequency of laptop usage and work-nonwork interruptions, r(369) = .11, p = .03, frequency of tablet usage also had a small, positive (but higher correlation than laptops) r(343) = .27, p < .001. Frequency of smartphone usage had a moderate, positive correlation to work-nonwork interruptions, r(356) = .31, p < .001. These results mean that as values for laptop, tablet and smartphone use increased between participants, values for work-nonwork interruptions increased. There is a stepped effect, with values of work-nonwork interruptions increasing more for smaller and lighter ICT's. ANOVA calculations found no significant effect for frequency of laptop usage on work-

nonwork interruptions. There was a moderate significant effect (η^2 = .07) of frequency of tablet usage on work-nonwork interruptions, F (2, 343) = 13.42, p < .001. Post hoc comparisons using the Tukey HSD test indicated that the mean score for low usage of tablets (M = 18.40, SD = 5.09) was significantly different than high usage of tablets (M = 21.86, SD = 4.37) and moderate usage of tablets (M = 19.65, SD = 4.90) was significantly different from high usage. However, moderate users did not differ significantly from low users. These results suggest that that the difference between high and low users of tablets is more significant than being a low to moderate user, high usage is more strongly related to work-nonwork interruptions.

There was also a moderate significant effect (η^2 = .09) of frequency of smartphone usage on work-nonwork interruptions, F (2, 356) = 17.10, p < .001. Post hoc comparisons using the Tukey HSD test indicated that the mean score for low usage (M = 16.84, SD = 5.09) was significantly different than high usage (M = 21.38, SD = 5.03) and moderate usage (M = 19.09, SD = 4.76) and moderate usage was significantly different from high usage. These results suggest that frequency of smartphone usage, effects work-nonwork interruptions, or the more frequently that a smartphone is used, the higher the number of work-nonwork interruptions. People who use smartphones less frequently have fewer work-nonwork interruptions and the interruptions increase as smartphone usage increases. Taken together, these results provide support for hypothesis 13 because frequency of ICT usage was found to be positively related to work-nonwork interruptions.

4.5.3.11 Peripheral Variables and Work/Nonwork Interruptions

The results that tested hypotheses one to 13 are stated above, but before performing regression analysis on the variables found to be important in work-nonwork boundary management, there are other variables that may be a potential influence on the boundary that need to be explored. It is not viable to assess every possible variable that could be related to boundary management, but there are some variables that may have an effect and form part of the bigger picture of boundary management in conjunction with the variables tested in the hypotheses. Demographic variables were tested to explore whether they were related to interruptions, because these factors could influence boundary management interruptions and practices. Women tend to engage in more household activities than men (Lachance-

Grzela & Bouchard, 2010) and there are gender differences in ICT use (Morris, Venkatesh & Ackerman, 2005) both of which could influence boundary management. People with childcare responsibilities may have more potential interruptions stemming from the non-work sphere (Wheatley, 2012). Relationship status may be important to boundary management, because studies show that single people experience a higher degree of overload and lower levels of coping and mastery than dual earner couples (Moen & Yu, 2000), which could influence boundary management practices. Age may also be relevant as people learn from experience how to manage their responsibilities over time, different work and non-work opportunities present themselves at different life stages (Moen & Yu, 2000) and there are also generational differences in attitudes to work-nonwork boundary management (Smith, 2010). Demographic factors represent differences in work and non-work issues that individuals manage. Country of origin was also checked as a precautionary measure, because the sample originated from a range of countries where there are different policies and attitudes to work-nonwork.

The MSIT measures important psychosocial work environment factors and provides a measure of the work characteristics that an individual is experiencing. It aims to delve into the working environment of the individual and gives an overview of the type of stressors that they may be experiencing within an organisational context (Houdmont, Kerr & Randall, 2012). The MSIT variables were used as a measure to test the general environmental factors, firstly because although each environment would be unique to the teleworker, there could be commonalities related to teleworking. Testing these variables could contribute to understanding the teleworking environment that the participants are functioning within. Secondly, it provided a measure of the individual-environmental factors that are important in any job role and could present potential interactions with the other tested variables. An example of this is that teleworkers report feeling that they experience less support from managers and colleagues (Harpaz, 2002) and the MSIT measures managerial and colleague support. It measures work demands which are potentially important for boundary management, because they have been found to be related to work-life conflict (Voydanoff, 2005). So, the MSIT was used to give a general overview of the working conditions and to gauge whether these conditions had any potential bearing on boundary management.

4.5.4 Demographics and Work/Nonwork Interruptions Results

The relationships between the demographic variables of age, country, relationship status, gender and number of children, to work/nonwork interruptions were tested through one way ANOVA and t-tests. No significant effect was found for age, country, gender or number of children under the age of 18 indicating that they did not effect interruptions in either direction. There was no significant effect of relationship status on work-nonwork interruptions, but there was a very small (η^2 = .01) significant effect for relationship status on nonwork-work interruptions, F (2, 376) = 4.31, p = .01. Post hoc comparisons using the Tukey HSD test indicated that the mean score for single people (M = 17.25, SD = 4.16) was significantly different than people in a relationship but not living together (M = 19.79, SD = 2.94). However, those married or in a domestic partnership (M = 18.04, SD = 3.17) did not significantly differ from the other two. This suggests that people who were in a relationship but not living with their partner, had more nonwork-work interruptions than the other groups and significantly more than single people. It could be that individuals not living with their partners need to invest more time into maintaining the relationship due to distance than those living together, which could account for the additional nonwork-work interruptions. However, this finding was not carried forward to the regression analysis because the effect size was very small indicating that relationship status in this study was not highly relevant to work-nonwork boundary interruptions.

4.5.5 MSIT Variables and Work/Nonwork Interruptions Results

Pearson correlations were computed to assess the relationship between work/nonwork interruptions to the five MSIT variables measuring: relationships at work, change, peer support, managerial support, role and demands. No significant correlations were found except for a small, significant positive correlation between work-nonwork interruptions and work demands r(372) = .26, p < .001 meaning that as values for work demands increased, values for work-nonwork interruptions increased. These findings show that there are other variables linked to the work situation of the individual that also impact upon the variables that are linked to personality traits. In this case, work demands were more highly correlated to work-nonwork interruptions than the tested personality traits.

4.5.6 Regression Analysis Results

The testing of hypotheses one to 13 found support that some variables were related to work-nonwork interruptions: hypothesis 1a conscientiousness (r = -.16), hypothesis 5a neuroticism (r = .14) and frequency of ICT use hypothesis 13; smartphone (r = .31), tablet (r = .27) and laptop (r = .11). In addition, work demands were correlated more highly than the tested personality variables (r = .26), number of hours per week spent teleworking was also significant (r = .17) so these two variables were added to the analysis as control variables. These variables being found to be significant were placed into a hierarchical multiple linear regression analysis to explore the portion of the variance that they explain in relation to work-nonwork interruptions. This statistical test was carried out to contribute to quantitative research question three, which was: 'What is the overall relationship of the three sets of variables (personality, work-nonwork boundary and ICT's) together?' (see Table Eight, page 100). The other tested variables that were not found to be significant were not placed into the test and excluding these variables from the regression analysis was not anticipated to be problematic, because as they were not found to be significant in previous tests, it is unlikely that they would be in a regression analysis. The next paragraph will report the main findings of these analyses and the assumption testing will be presented after the main findings, to prevent detraction from the main results.

A hierarchical multiple linear regression analysis was run to determine if the addition of frequency of smartphone, tablet and laptop use explained additional variance of work-nonwork interruptions over and above the personality variables of conscientiousness and neuroticism, after controlling for work demands and weekly hours spent teleworking. Table 19 (page 149) below gives a summary of the hierarchical linear regression analysis of the variables explaining additional variance of work-nonwork interruptions. The full model of work demands, weekly time spent teleworking, conscientiousness, neuroticism, frequency of smartphone, tablet and laptop use to predict work-nonwork interruptions (Model Three) was statistically significant, R^2 = .26, $F(3, 313) = 17.73$, $p < .001$; adjusted R^2 = .25. Model Three accounted for 26% of the variance. The addition of the personality variables of conscientiousness and neuroticism to explaining work-nonwork interruptions (Model Two) led to a statistically significant increase in R^2 = .14, $F(2, 316) = 3.52$, p = .03; adjusted R^2 = .13. The addition of the control variables of work demands and weekly time spent teleworking to

the variance explained in work-nonwork interruptions (Model One) led to a statistically significant increase in R^2 = .12, $F(2, 318) = 21.02$, $p < .001$; adjusted R^2 = .11.

Table 19: Summary of the Hierarchical Regression Analysis for Variables Explaining the Variance in Work-Nonwork Interruptions (*N* = 321)

Variable	***B***	***SE B***	**B**
Step 1			
Work demands	1.55	.27	.31
Weekly hours worked at home	.05	.02	.15
			Change in R^2 = .11
Step 2			
Work demands	1.37	.28	.27
Weekly hours worked at home	.06	.02	.17
Conscientiousness	-.24	.13	-.10
Neuroticism	.14	.10	.08
			Change in R^2 = .14
Step 3			
Work demands	1.12	.26	.22
Weekly hours worked at home	.04	.02	.12
Conscientiousness	-.18	.12	-.08
Neuroticism	.29	.20	.16
Frequency of smartphone use	1.0	.20	.29
Frequency of tablet use	.49	.20	.13
Frequency of laptop use	.21	.21	.05
			Change in R^2 = .26

4.5.6.1 Assumption Testing

Independence of residuals was assessed by a Durbin-Watson statistical test (1.95) indicating that autocorrelation was not an issue within the data (Field, 2013). A scatterplot of the residuals was plotted to test for linearity and a horizontal pattern in the data emerged, indicating that the relationships between the independent and dependent variables are likely to be linear (see Figure 9, Appendix 3.6, page 371). A visual inspection of the plot of studentised residuals versus unstandardized predicted values was completed to assess that there was homoscedasticity (see Figure 9, Appendix 3.6, page 371). To check for normality of the data, a histogram of the regression standardised residuals was assessed and it showed a general normal distribution shape (see Figure 7, Appendix 3.6, page 369). The P-P Plot was then analysed and showed that the points were approximately aligned along the diagonal line, indicating that the assumption of normality had not been violated (see Figure 8, Appendix 3.6, page 370). A Normal Q-Q Plot of the studentised residuals was also analysed as a further check for normality and the points were closely aligned along the diagonal line, further indicating normality (see Figure 10, Appendix 3.6, page 372). The correlation matrix was checked showing that none of the correlations between the independent variables were 0.7 or greater, indicating that they were not highly correlated and all tolerance values were greater than 0.1 indicating that multicollinearity is likely not an issue in this dataset (Field, 2013). The leverage points were reviewed in descending order and none were above 0.2, indicating that none of the cases exhibited high leverage[12]. Cook's Distance was calculated to determine if any of the cases were influential and no cases had values above 1, so it is likely that no individual cases were influential in the data[13].

However, casewise diagnostic tests found two outliers; case four (standard residual -3.18, predicted value 21.00 and residual -14.00) and case six (standard residual -3.18, predicted value 20.96 and residual -13.96). Studentised deleted residuals were checked by ordering from largest to smallest and none had *SD* +3, but two cases had *SD* of -3 (case 141, *SD* = -3.27 and 336, *SD* = 3.26). These checks suggest that these two cases could influence the regression analysis and violate the assumptions of the test, that being that no unusual points should be

[12] Leverage values less than 0.2 are considered safe, 0.2 to less than 0.5; 'risky', and values of 0.5 or more as 'dangerous' (Laerd, 2015).

[13] Cook's Distance values above 1 show influential cases of data (Field, 2013).

in the data. These could reduce the predictive accuracy of the results and the statistical significance. However, in spite of this, Models One and Three still had a significance level of $p < .001$ indicating that these cases did not reduce the statistical significance of the models substantially. The analysis was run again after excluding these four cases to check for differences between the above models and models run without these potentially influential cases. The R^2 values were the same for Models One and Two indicating that these outliers made little difference and the R^2 for Model Three was slightly higher (Model One $R^2 = .12$, Model Two $R^2 = .14$ and Model Three $R^2 = .28$). Overall, the tests of the assumptions for regression analysis indicate that the assumptions were not violated in these models, except that if these outlier cases had been removed, a slightly larger R^2 value would have been achieved for Model Three.

4.6 Discussion

Hypotheses one to 13 were tested and approximately half of these hypotheses were supported by the data. The important findings included that conscientiousness and neuroticism were related to work-nonwork interruptions, as was frequency of smartphone, tablet and laptop use. Conscientiousness, dutifulness and impulsiveness were related to nonwork-work interruptions. 26% of the variance of work-nonwork interruptions can be explained by conscientiousness, neuroticism, smartphone, tablet and laptop use, work demands and weekly time spent working from home.

This section is structured by firstly discussing the findings related to the tested personality traits and their relationships to the work/nonwork boundary and ICT use. Section 4.6.1 will discuss extraversion and gregariousness, followed by Section 4.6.2 conscientiousness and dutifulness, then Section 4.6.3 neuroticism and impulsiveness, all of which are related to research questions 1a and 1b and hypotheses one to 12 (a reminder of the research questions and their related hypotheses can be found in Table Eight, in Chapter Two, Section 2.8, page 100). Section 4.6.4 will discuss the issues arising from this study in relation to testing both broad and narrow traits. Section 4.6.5 will then discuss the findings related to ICT use and the work-nonwork boundary, which is specifically related to research question two and hypothesis 13. This is followed by Section 4.6.6 which discusses the relationships of the variables together to contribute toward research question three. After the main results have been discussed Section 4.6.7 will discuss the nature of the relationship of work demands to work-nonwork interruptions that were found to be important in addition to the main tested variables, before a brief discussion of the frequency of interruptions in Section 4.6.8. Sections 4.6.9 and 4.6.10 will assess the limitations of the study and some suggestions for future directions for research that this study has raised from its findings.

4.6.1 Extraversion and Gregariousness

Extraversion and gregariousness had no relationship to boundary interruptions either way (hypotheses 3a/b and 4a/b), even though both traits are related to seeking out interaction with others and stimulation from the external environment (Chamorro-Premuzic, 2007 and Costa & McCrae, 2006). As telework is generally more isolated and there is less interaction

with the outside world (Mann & Holdsworth, 2003), it was expected that teleworkers might create more nonwork-work interruptions, as a means with which to reduce boredom or initiate contact. However, the results show that there is no evidence that they mitigate these working conditions by breaching the boundary and although this was found to be the case, there may also be another issue to consider. This study tested interruptions between the work and non-work spheres, so it was assumed that these traits would be linked to seeking out stimulation from non-work sources (hypotheses 3b and 4b) to meet these needs, because extraversion is related to seeking out stimulation from the external world (Watson & Clark 1997, Chamorro-Premuzic 2007 and Costa & McCrae 2006). However, what was not explored, was the possibility that they could seek out stimulation and contact with people from the work sphere itself, for example creating opportunities for contact with work colleagues. So they may still seek out this social stimulation, but through the work sphere. If this were the case, they would not have additional nonwork-work interruptions but could have more interruptions originating from work-based sources. Wajcman and Rose (2011) found that even in an office environment, face-to-face work based interruptions took place less frequently than ICT based interruptions. This may be even more significant in a teleworking context where there would likely be even fewer face-to-face interruptions. They describe individuals as using these ICT interruptions to split their time up into mini portions of time between the interruptions. Using ICT's throughout the day in this way facilitates changing focus on a frequent basis and this frequent change could be beneficial for more extraverted people, as it could be a way to reduce boredom, which they tend to try to do (Howard & Mitchell-Howard, 2001).

Another issue to take into consideration when assessing these results is the degree to which the participants already found their work stimulating. Studies have shown that extraverts have higher levels of absence and are more likely to leave their jobs than introverts (Cooper & Payne, 1967) suggesting that they may find alternative work by changing their environment altogether if it is not stimulating enough. Jobs in a telework context are not necessarily less stimulating, even though the environment may be quieter, so if the job were stimulating enough, the environment would be less likely to be problematic to highly extraverted or gregarious individuals. However, if they did not feel stimulated enough, they might work towards changing their role and therefore not stay in a context where they would need to

create interruptions to increase stimulation. Similarly, although the teleworking context is typically more isolating (Morganson et al., 2010), it is also involves using ICT's such as emails, telephone calls and online meetings (Golden, 2009), all of which create some social contact. Jobs that provide a high degree of this kind of interaction may serve to meet the needs of more gregarious people. As people often self-select into jobs that reflect their personalities (Kausel & Slaughter, 2011), it could be the case that the job itself provides the stimulation and social interaction necessary and if it does not, individuals may self-select into an alternative job. Overall, what these findings show in relation to research question 1(a), is that in a real-world home-based teleworking context, there was no evidence that extraversion and gregariousness influence boundary management by increasing interruptions between spheres. However, it is not known whether the traits may be related to experiencing more interruptions through work-based sources as a means to socialise, because these were not tested in this study.

In regard to research question 1b, Extraversion was related to frequency of laptop and smartphone use (Hypothesis 9) and gregariousness to frequency of smartphone use (Hypothesis 10). It may be that more extraverted and gregarious people use these items of technology as a means to connect with other people and for stimulation or to reduce boredom. The smartphone is a device which can be used as a medium for stimulation such as through games, internet browsing or to connect with others through telephone calls or texting (Buckner et al., 2012). These findings add to previous research that assessed personality and ICT use, including studies that show that extraverts do not make more outgoing calls, but they do spend longer on phone conversations (Butt & Phillips, 2008) in non-work contexts. So, in an everyday non-work context, smartphones are not key to reaching out for social contact to others for more extraverted and gregarious individuals, but this being a teleworking context it may be more significant in mitigating a more isolated environment. As extraverts do not have more negative attitudes to telework (Clark et al., 2012), this suggests that they do not necessarily perceive it as potentially isolating or something that they would find difficult. They may find proactive ways of dealing with the potential disjoint between their personality traits and the home-based teleworking environment.

Extraverts are more likely to use their phones to reduce boredom in non-work contexts (Phillips et al., 2006), but this may not carry over into work. Extraversion was not related to boundary interruptions in this study and it might be expected that if they used their phones to reduce boredom, their interruptions would increase. It could be that in a telework context if they do use it to reduce boredom, it might be more for work purposes rather than non-work. Alternately, non-work based studies such as Chittaranjan et al. (2013), found that extraverts are less likely to use phones for game playing and the internet, (a potential boundary interrupter in a work context) which could be mirrored in this work context too. Similarly, the behaviours of more extraverted people to reduce isolation and boredom when remote working, was found not to come specifically through 'cyberslacking' by O'Neill and colleagues (2014(a) & 2014(b)). Overall this study showed that in relation to research question 1b, the traits of extraversion and gregariousness were related to frequency of ICT use for work purposes. However, the specific way that they use the ICT's are not known, but it may not be to breach the boundary in this teleworking context, considering that these traits were not related to work/nonwork interruptions.

4.6.2 Conscientiousness and Dutifulness

As conscientiousness is related to achievement striving (Costa & McRae, 1992), it was surprising to find in this study that the trait was related to fewer work-nonwork interruptions (Hypothesis 1a). However, highly conscientious people tend to possess good organisation skills and self-discipline (Barrick & Mount 1991 and Chittaranjan et al., 2013) which may indicate that they complete their work early, or within their allocated work time. Similarly, conscientiousness was related to fewer nonwork-work interruptions supporting hypothesis 1b, suggesting that high scorers may be better able to resist interruptions coming from the non-work sphere and maintaining focus on work. However, this was a modest correlation, so not the only factor influencing interruptions. These results taken together, show a degree of segmentation between the two spheres and highly conscientious people may dedicate themselves to either work or non-work, focussing on one or the other at a time. If this is the case, it might enable them to concentrate with fewer interruptions during work time and therefore have less of a need to work during non-work time. Conscientiousness may be a trait that transcends the working environment as it is not related to favourable or

unfavourable attitudes to telework (Clark et al., 2012), teleworking itself may not provide different opportunities than more conscientious people would experience in any work environment.

The participants in this study displayed a very high degree of conscientiousness due to the severe negative skew of the data, which displayed a ceiling effect, because many participants reached the maximum score for conscientiousness. If the scale had contained more items to measure conscientiousness, it may have led to a wider range of scores and a greater ability to differentiate between degrees of conscientiousness in the sample. As conscientiousness might be related to retaining telework employees (O'Neill, 2009), and is related to job performance in other work settings (Barrick & Mount, 1991) anyone who was not conscientious enough might find it difficult to maintain a teleworking job in the long term. Therefore the highly conscientious sample could be due to the nature of telework which requires a certain degree of organisation and motivation skills to be able to work well within.

Interestingly, although dutifulness was expected to follow a similar pattern, this was not the case, as no relationship was found between the trait and work-nonwork interruptions (Hypothesis 2a), but a similar pattern did emerge for nonwork-work interruptions, as fewer interruptions were reported (Hypothesis 2b). In a teleworking context where there are fewer external controls on work behaviours (Chen & Nath, 2008 and Raiborn & Butler, 2009) dutifulness may act as an internal mechanism to limit engagement in non-work activities and focus more on work out of a sense of duty toward the organisation, as it is linked to being trustworthy and abiding by rules and moral obligations (Costa & McCrae, 2006). This supports Moon (2001), who found that dutiful individuals acted in the interests of their organisation and they may also do so by disallowing non-work activities from interfering with their work. So, overall in relation to research question one, the traits of conscientiousness and dutifulness were found to influence boundary management to an extent, such that they were related to fewer interruptions between spheres, suggesting that a degree of segmentation was exercised.

In regard to research question 1b, the study showed no relationship between the traits of conscientiousness and dutifulness and frequency of ICT use (Hypotheses 7 and 8) suggesting that they are not related. Previous literature found a negative relationship between

conscientiousness and excessive ICT use in the workplace, such as internet and texting (Buckner et al., 2012), but Buckner's study explored problematic ICT use in a work context. This study explores actual usage and it could be that highly conscientious individuals perhaps do not use their ICT's excessively because they use them merely for what they need to use them for. Chittaranjan and colleagues (2013) found that conscientiousness was related to having fewer missed calls, but spending less time talking on the phone, indicating that conscientious people used ICT for its purpose, but not beyond what was necessary. In this study, the lack of correlation between conscientiousness, dutifulness and ICT use, might indicate that highly conscientious and dutiful people use their ICT's no more or less than they need to. An example of this is that they make calls, receive calls, or check emails when it is pertinent to the situation, but do not do so excessively. Highly conscientious people tend to be more proactive (Thomas, Whitman & Viswesvaran, 2010) which might explain why they do not avoid its use either, but perhaps use it proactively when it is necessary to do so.

4.6.3 Neuroticism and Impulsiveness

In regard to research question 1a, neuroticism was influential to an extent in boundary management in that it was related to experiencing more frequent work-nonwork interruptions (Hypothesis 5a) and this could be due to several factors. Neuroticism is related to reactivity (Suls & Martin, 2005), along with a tendency to worry (Chamorro-Premuzic, 2007). It is speculation but the more frequent interruptions from work into non-work could be due to a tendency to worry about work and this could lead to working overtime, or being pulled back into work as a means to ease anxiety about it. Anxieties might also be eased by a quick and reactive response which could further increase interruptions, rather than waiting to deal with such issues at a different time.

Neuroticism had no relationship to nonwork-work interruptions (Hypothesis 5b) even though the trait is linked to mood spillover (Suls & Martin, 2005) and people with anxious attachment styles tend to experience negative spillover in both directions (Canan Sumer & Knight, 2001). This being the case, it might be expected that the interruptions would go in both directions rather than one, so this study contradicts these findings. However, these findings might link in to the telework literature suggesting that teleworkers have more difficulties switching off and feelings of guilt for doing non-work activities during work time (Montgomery et al., 2009).

It might be that this is activated for high scorers in comparison to people who are more emotionally stable, as there could be extra feelings of guilt for engaging in non-work activities during work time and feelings of guilt are common for high scoring individuals (Quevedo & Abella, 2011). So in response to research question 1a, this study has shown that the picture formed for the trait of neuroticism to boundary interruptions is nuanced and may not effect both spheres equally.

This study found that the pattern in relation to impulsiveness was reversed in comparison to that of neuroticism, as no relationship was found for work-nonwork interruptions (Hypothesis 6a), but impulsiveness was related to more nonwork-work interruptions (Hypothesis 6b), which contributes toward research question 1a. Impulsiveness includes taking actions whether or not the actions are in the best interests of the person taking them (Costa & McCrae, 2006). As impulsive actions are linked to motivations (Frijda, 2010), work activities during non-work time may be easier to resist if there is less motivation towards those activities. Nevertheless it might be difficult to resist responding to or creating interruptions stemming from the personal sphere, if there is more of a desire or urge to do so for high scorers in impulsiveness.

In regard to research question 1b and Hypothesis 11 a relationship between the trait of neuroticism to ICT use for work purposes was found, that being a negative one. It may be that people scoring highly in neuroticism avoid using smartphones to prevent experiencing difficulties that could arise from their use, for example, emails can be accessed via a smartphone as can text messages and access to these forms of communication could bring with them new work pressures or potential conflicts with colleagues. Avoiding smartphone use could act as a barrier from these perceived demands and conflicts, especially considering that neuroticism has been linked to avoidance coping strategies (Gomez et al., 1999). Butt and Phillips (2008) and Lane & Manner (2011) found that high scorers in neuroticism were more likely to use email and text messaging, possibly because it is a way to avoid the pressure of face to face contact. However, in a teleworking context, if face to face contact is less frequent and ICT's become the main way to communicate with colleagues, it could also become a source of stress and potential conflict with people and so avoiding it may reduce anxiety. As high scorers in neuroticism tend to experience worrying and procrastination (Perkins et al., 2015 and Watson, 2001), teleworking may provide an environment for a vicious

cycle for high scorers in neuroticism, because a combination of the isolated environment and avoiding communications could lead to a build-up of problems, for example avoiding seeking help when required. This avoidance may create difficulties that left longer take more resources to resolve. High scorers might benefit from additional support and regular contact to prevent these potential additional problems.

Interestingly, no relationship was found between impulsiveness and ICT use for work purposes, contributing to research question 1b, even though it was hypothesised in hypothesis 12 that there would be a relationship and Billieux and colleagues (2008) found that impulsiveness was linked to problematic and actual phone use. The difference could be because this study only assessed ICT use for work purposes and studies show that impulsive action is partially driven by a motivation or inclination toward what is acted upon (Frijda, 2010). Put another way, there would need to be a desire to engage with the ICT's to do so impulsively and this may not be quite so present in ICT use for work purposes as it might be for non-work.

4.6.4 Narrow and Broad Trait Explorations

This study showed that testing narrow as well as broad traits can reveal differences that would go unnoticed if not explored and that narrow traits may not necessarily follow an identical pattern to their relative broad domain traits as previously found (Christiansen & Robie, 2011 and Schneider et al., 1996). Extraversion and gregariousness followed similar patterns in their relationships to boundary interruptions (not related) and to ICT use (positively related). Both the broad and narrow trait are strongly linked to sociability (Costa & McCrae, 1995), which could be why the findings of both were similar. However, the pattern was not so clear cut with neuroticism which showed a different pattern (positively related to work-nonwork interruptions) to impulsiveness (positively related to nonwork-work interruptions). Exploring broad and narrow traits was more illuminating in the case of neuroticism and these differences could be because impulsiveness taps into behaviours related to desire (Frijda, 2010 and Billieux, 2012). On the other hand, overarching neuroticism is more about the experience of negative emotions (Perkins et al. 2015 and Quevedo & Abella, 2011) and this might explain the behavioural differences in this context. An implication of this is that it cannot be assumed that broad and narrow traits will show similar patterns in their

relationships to other variables, so specific traits should be selected for testing based on their relevance to the work environment, or role that is being studied, to reveal a potentially more nuanced picture.

4.6.5 ICT use and the Work-Nonwork Boundary

Frequency of ICT usage was related to frequency of work-nonwork interruptions in Hypothesis 13 and showed a stepped effect, with laptops a small effect, tablets a larger effect than laptops and smartphones showing a moderate effect, larger than tablets. This finding supports Derks and Bakker (2014), who found that smartphone use increased work-nonwork interference particularly for intensive users. However, this study showed that it was not just intensive users, but that the more the smartphone was used, the more there were work-nonwork interruptions across the range from low to high users. These findings also build onto those of Chesley (2005) who found that PC use was not related to work-home conflict but mobile phone usage was. The current study found that laptops were mildly related to work-nonwork interruptions and it could be that laptops are more portable than a static PC, which is why there was a significant effect for these, but not in Chesley's study. As this study assessed teleworkers, it might be easier for someone working from home to keep their laptop on after work, than an office worker who would have to set up their laptop again once they returned home. Therefore, it could be that the effects of laptops on the work-nonwork boundary for teleworkers and non-teleworkers may be different. One potential implication of these findings is that studies should differentiate between different types of ICT's when assessing their relevance to the work-nonwork boundary. Portability seems to be the key issue, as small technology is more likely to be carried around and make it more likely that the carrier will experience work-nonwork interruptions due to their ease of use (Hislop et al., 2015). A second is that people who do not enjoy frequent work-nonwork interruptions may find that reducing their smartphone use during non-work time, could reduce the number of interruptions that they experience. If a greater degree of segmentation is preferred by an individual, they may wish to place some limitations on their other ICT's too such as laptops and tablets, as these can also have an interruptive effect. So, using a range of strategies to disconnect from these devices may be beneficial to individuals who prefer not to experience their interruptive effects.

4.6.6 Personality, ICT's and Work-Nonwork Interruptions

Research question three asked what the relationships of all of the variables (personality, ICT's and work/nonwork interruptions) were when taken together. The relationship of these is complex and as discussed above it was found that frequency of ICT usage was related to work-nonwork interruptions and extraversion and gregariousness were related to frequency of ICT use. This being the case, it might be expected that these traits would also be related to additional work-nonwork interruptions, because ICT use could act as a mediator between the two. However, this was not found to be and it could be that more extraverted and gregarious people may express their social nature (Cooper, 2015) through using their ICT's more during work, for example to contact colleagues. The bulk of their additional frequency of usage may take place during work time, which would not have been picked up by the measures in this study and would not increase cross sphere interruptions.

Similarly, conscientiousness was found to have a negative relationship to work-nonwork interruptions, but no relationship to smartphone use, even though smartphone use was related to work-nonwork interruptions. This being the case, it might have been thought that more conscientious people would use their smartphone less, but this was not found to be so. If their attitudes to smartphones could be to use it for its purpose and nothing beyond, this might eliminate the potential boundary blurring effects of smartphones. Organisation and planning skills which are central components of conscientiousness (Chittaranjan et al., 2013), may be a more prevalent factor in reducing work-nonwork interruptions regardless of ICT use. Neuroticism although related to using smartphones less frequently for work purposes, was positively correlated to work-nonwork interruptions. In this case, the additional work-nonwork interruptions may be non-technology based, for example by continuing to work after hours, or the effects of rumination (Perkins et al., 2015), which may then become a form of psychological interruption (Montgomery et al., 2009). Another possibility is that as technology such as smartphones and laptops have become so prevalent and widely used by so many people (Den Nagy, 2014), the link between their use and personality traits has weakened because they are now part and parcel of everyday life.

Another way that the relationships between the variables were assessed to contribute to research question three, was through the hierarchical multiple regression analysis which

assessed the contribution that personality traits and ICT use had on work-nonwork interruptions as a whole. The Models developed through this, showed that the tested personality traits made up less of the variance of work-nonwork interruptions, than the three ICT's. Therefore based on this model, ICT use was much more of a significant factor in boundary interruptions than personality traits on their own. This adds to knowledge by showing that personality traits do play a small role in boundary management, which is not known to have previously been assessed in the literature, but that ICT's may be more of an issue in regard to this.

4.6.7 Work Demands and Work-Nonwork Boundary Interruptions

Work demands were tested and found to be related to work-nonwork interruptions and more strongly than the tested personality variables. A heavy workload may increase pressure on the individual and influence their choices to continue with work-based tasks outside of their work time, regardless of whether it is something that they want to do. Other studies have found that excessive work demands can lead to work-life conflict which in turn can result in negative outcomes such as stress and lower job satisfaction (Yildirim & Aycan, 2008). Voydanoff (2005) found that time based work demands were linked to work-nonwork conflict and in this study, work demands were found to influence the amount of time spent on work outside of working hours. This extra time, could potentially lead to conflict if significant others feel resentment that the additional time spent working is being taken away from quality time with them. Overall, this adds to knowledge by finding that regardless of personal preferences or individual differences such as personality traits, environmental factors such as pressures from work in the form of work demands, play a significant role in interruptions and may be more significant than traits.

4.6.8 Frequency of Interruptions

This study focussed on teleworkers who spend some of their time working from home. As posited earlier in the study, working from home merges together the spheres of work and non-work simultaneously due to the lack of a physical boundary that exists when people work and live in different spaces (Mustafa & Gold, 2013). In this study, the sample showed skewing on both types of interruptions variables, meaning that the reported work-nonwork and

nonwork-work interruptions both had high mean scores. Put another way, the sample as a whole, had relatively high frequencies of both types of interruptions. These high recorded scores in the sample, might be due to the nature of telework and as suggested by Nansen et al. (2010), the home-based teleworking context may lend itself more naturally to polychronicity. As teleworkers may experience a higher degree of interruptions between spheres (Kossek et al., 2009), maintaining a segmentation preference might be difficult for individuals working within this context and preventing integration might be something that home-based teleworkers have to work at if they tend to prefer a more segmented style.

4.6.9 Limitations

As with any cross-sectional study design, this study cannot determine cause and effect between the variables that were explored and the sample is representative of the participants during the snapshot of time that the data was collected. The relationships between personality, work/nonwork boundary and ICT's were small to moderate, so this research gives an insight into these relationships, their direction and strength, but does not explain how the boundary management preferences and the interaction between these variables might function on a daily basis. Due to there being significant unexplained variance, it does not explain other factors and influences on work/nonwork boundary management.

The study found small correlations between personality traits, boundary interruptions and ICT's indicating that their relationships exist although small. Previous, similar studies also tended to find small correlations between traits and other variables (Lane & Manner, 2011, Billieux et al., 2008 and Chittaranjan et al., 2011). These small correlations mean that too much weight cannot be placed on the influence of traits in relation to interruptions, or ICT use, although they do play a small role. There is a great degree of outstanding variance, so other unknown factors are involved in boundary management interruptions. A decision was made to leave outliers in the data, to keep it as pure as possible (Osborne & Overbay, 2004). Often when outliers are removed, it can lead to less skewing and can change the nature of the relationships of the variables, for example already significant findings may have a bigger effect size (Osborne & Overbay, 2004). If the outliers had been removed, this might have made for stronger correlations than those that were found.

The TIPI scale (Gosling et al., 2003) used to measure the five broad traits, is robust (Ehrhart et al., 2009 and Romero et al., 2012) and has been frequently used in published research (Jochemczyk, Pietrzak, Buckowski, Stolarski & Markiewiciz, 2017, Gosling, Augustine, Vazire, Holtzman & Gaddis, 2011 and Belisle & Bodur, 2010). However, because it is a short measure, it may not pick up more fine-grained responses that a full-length scale may have done (Woods & Hampson, 2005). The variable of conscientiousness was severely skewed and showed a ceiling effect where many participants scored the highest possible score. This might have been because of the use of the short measure, failing to differentiate enough between degrees of conscientiousness in the participants. If a full-length measure was used, there might have been more variation in responses and a less skewed dataset. The correlations may also have been larger if there had been a greater spread in the data and the restriction of range could be one reason for the small correlations that were found. However, due to the length of the survey it would be difficult to use full length measures without the extra length increasing the drop-out rate (Porter, 2004). The survey may have attracted people scoring highly in conscientiousness, for example to take the time to voluntarily complete a lengthy survey through to the end might be more likely from conscientious people.

Due to the data collection taking place through an online survey and advertised largely through social media, it meant that there was no way of knowing the exact size of the population of teleworkers that the participants came from. This makes it more difficult to calculate error margins and to know who was excluded from participation (Sue & Ritter, 2012). To mitigate against this, a wide net approach was taken to attract as many people as possible to the survey, by advertising the survey widely across different social media sites and groups to open up the possibility to participate broadly. Efforts were made to make the survey user friendly to encourage full completion. These steps were taken as advised by (Sue & Ritter, 2012) and are detailed in Section 4.3.1.

A conventional value of $p < .05$ was used, but to protect against type one errors, a measure using the Bonferroni correction was applied. All reported significant results were at the $p <$ 0.05 level or less and a subset were significant at the $p < .001$ level. There is a possibility that some of the variables within the 0.05 level could be the product of a type one error. However, using the Bonferroni correction can be very conservative and this could increase the likelihood of a type two error, where some significant results may not have been picked up (Field, 2013).

Correlations of .20-.25 were expected as this tends to be typical for most behaviours correlated to personality traits, but this study found slightly smaller correlations. Retesting on a larger sample might have found higher correlations.

No incentives were given to participate in the survey, meaning that participants were not influenced by incentives, but likely participated through personal choice. However, because they completed the survey voluntarily, they may have been more likely to participate because they were specifically interested in telework, or had some individual motivation toward the topic. Therefore, even though the sample size is large, self-selection bias may be present (Bethlehem, 2010). So, the sample likely consisted of teleworkers who had a particular stake in telework, more than teleworkers who had the opportunity but chose not to participate, or failed to complete the survey in full.

Previous studies note that work-nonwork research tends to focus on white collar workers and there is a significant lack of research into other types of workers (Hislop & Axtell, 2011 and Shorthose, 2004). This research also focusses on this group, as the majority of participants were highly educated, white collar workers, so it is also limited in this way. However, as the focus of the study was on teleworkers in particular, most people engaging in telework would at least be using technology heavily to do their jobs, so it might be expected that few would be blue collar. Similarly, work-nonwork research has come under criticism for its primary focus on dual earner couples (Ransome, 2007). In this study, the drop-out rate prior to completion for single people was significantly higher than for other groups and the sample only contained 16% single people. This indicates that single people may have been discouraged in some way from participating in the survey, or something part way through influenced their decision to drop-out. After feedback from the pilot survey, changes were made to the final survey to reduce alienation of these groups such as using the term 'personal life' rather than 'family'. Although, changes were made to reduce the risk of drop-out for single people, this effect still occurred.

Data was collected from individuals that engaged in telework for some of the time, this included a range of full, part-time and hybrid workers and those who solely worked at home, while others had an office base and spent some of their time working from home. The results from this study may be different than if the focus had been on people who solely teleworked because all of their work time would have been spent teleworking. Gender was not related

to interruptions as might have been expected as previous studies show that women tend to do more family related activities such as housework than men, even when both are engaged in paid work (Lachance-Grzela & Bouchard, 2010). Men are often expected to place a higher priority on work than on their families (Duxbury & Higgins, 1991). A recent study on the WorkLife Indicator (Wright, Kutschenko, Bush, Hannum and Braddy, 2015), found that the work-family interruptions scale had predictive invariance in relation to gender and it did not accurately predict gender differences. This could be a reason for the lack of significant findings related to gender and even if differences were present, the instrument would likely have not picked these up.

The MSIT variables that were tested were not found to be related to interruptions either way, except for work demands. This measure has been used across a range of small, medium and large organisations (Edwards & Webster, 2012) and is very flexible, so it may have been expected that more significant results would have been found. Due to the participants in this study coming from a range of organisations and sectors it might be more difficult to find commonalities in relation to the MSIT than if they had been from one organisation. Similarly, as each teleworker's environment is unique and different, this could be another reason why commonalities were not found.

4.6.10 Future Directions for Research

This study found no relationship between extraversion and gregariousness and work-nonwork interruptions between alternate spheres, but did find that higher scorers used smartphones more frequently. As mentioned earlier, this study did not assess work-work interruptions which can also be a source of distraction. A future study could explore extraversion and its associated facets and whether these traits are related to work-based distractions and interruptions. Smartphones might serve to reduce boredom and enable social contact from within the sphere of work and a study assessing interruptions originating from the work sphere might yield different results.

As neuroticism and its associated facet of impulsiveness showed different relationships to interruptions in both spheres and smartphone use, it highlights that broad and narrow traits can be complex in their relationships to other variables. As this study highlights that the trait of neuroticism might bring with it more complex issues when teleworking, a further study

could assess neuroticism and all of its associated facet level traits in relation to boundary management and ICT use. This could explore how this trait might manifest in a home-based teleworking context. It could look more in-depth at how relationships are managed considering the distance that telework brings and how they could be managed in a beneficial way in the long term, taking into account some of the potential boundary difficulties that people scoring highly in neuroticism may experience (Noftle & Shaver, 2006).

In this study, a large portion of the sample scored highly in conscientiousness so the findings are related to a largely conscientious group, future studies could assess a group low in conscientiousness. As the remote working environment requires organisation skills and responsibility for setting up their work environment (Kreiner et al., 2009 and Nansen et al., 2010) and working with less supervision (Chen & Nath, 2008 and Raiborn & Butler, 2009), low scorers in conscientiousness may find the demands of home-based teleworking challenging to manage. This could be particularly the case because the ANOVA calculations showed that the greatest difference in interruptions were between high and low scorers, indicating that there were differences in boundary management between the two. Conscientiousness and its facets may be highly relevant in this context, so future studies could assess boundary management and teleworking practices in a low conscientious group.

4.7 Chapter Summary and Rationale for Study Two

Study One showed that personality traits influence the work/nonwork boundary to a small extent. The traits of neuroticism and conscientiousness and narrow traits of impulsiveness and dutifulness were found to be the most important traits out of those explored in relation to boundary interruptions. The frequency of ICT use was found to have a stronger relationship to work-nonwork interruptions than personality traits, indicating that the frequency with which people use ICT's such as smartphones was more significant in boundary management. Extraversion, gregariousness and neuroticism were the most important traits related to frequency of smartphone usage. Although personality traits and frequency of ICT's play a role in boundary interruptions, this study found that environmental factors such as work demands also contributed toward boundary interruptions. Overall, 26% of the variance of work-nonwork interruptions can be explained by conscientiousness, neuroticism, smartphone, tablet and laptop use, work demands and weekly time spent teleworking. So,

personality was an important variable in boundary interruptions, but other variables such as ICT use, work demands and the amount of time spent working at home played a bigger role.

Boundary management was measured in Study One through the use of a survey and although the study yielded findings on some variables that are related to it, it does not tell us about the nature of peoples' boundary management preferences. Study One does not show how boundary management preferences might play out and whether there are idiosyncrasies in the expression of these preferences. It does not explain whether people engage with managing their boundaries in a teleworking context in either a haphazard or deliberate way. More specifically, previous studies (Piszczek, 2017, Derks et al., 2016 and Derks et al., 2015) have explored how people express their segmentation and integration preferences, especially in regard to their ICT use, but it is likely that some people's preferences are for neither purely segmentation, or integration and that boundary management is much more complex (Cohen et al., 2009, Golden & Geisler, 2007 and Hislop & Axtell, 2011). An exploration of a wider range of boundary management preferences is possible and such models offer the benefit of going beyond the segmentation-integration poles, while at the same time still giving a degree of structure that can enable the analysis of different patterns within varying boundary management groups (Kossek et al., 2008 and Kossek et al., 2012). One significant strength of Study One was that it collated a significant dataset of boundary management data that could be analysed to create boundary management category groups. Study Two will use this data from Study One to categorise the participants based upon their boundary management scores into different boundary management groups. These different groups will then be explored qualitatively to explain the similarities and differences between these groups, which go beyond segmentation and integration preference. This exploration will come in the form of qualitative research question one:

> *'What is the nature of the relationship between the boundary management groups and boundary management practices?'*

(The development of the boundary groups and selection process is explained in full in Chapter Five, Section 5.5.5).

This study has highlighted some of the variables that play a role in boundary management, however there is still unexplained variance that Study One does not account for. As other

unexplained variance still exists, a flexible method such as interviews would enable some of these potential unexplained factors to emerge through discussions with a carefully selected group of participants. Although Study One showed the relationships between personality and boundary management, it did not tell us how personality might interact with work circumstances and this could be discovered through interviews. Study One also found that demographic variables had very little influence over boundary interruptions, indicating that personal preferences might be more significant in how people manage their boundaries than demographic characteristics. Previous studies (Mustafa & Gold, 2013 and Rothbard, et al., 2005) have also found that demographic characteristics were less influential in boundary management of individuals than their actual boundary management preferences. The influence of factors, not discovered in Study One (or some of the unexplained variance) on boundary management preferences, can be explored through an in-depth qualitative study. Selecting participants based upon their boundary management characteristics as discussed above, facilitates the exploration of the significance and differences between individuals with differing boundary management preferences. Similarities and differences between participants with different boundary management preferences can then be analysed to add to the picture of factors that influence work/nonwork boundary management. This could not be detected through the questionnaire method of Study One, but will be explored through qualitative research question two:

> *'What factors influence the differences in boundary management groups and practices?'*

Frequency of ICT use made up some of the variance in the hierarchical linear multiple regression analysis, particularly smartphones which accounts for more variance than the personality traits. The stepped effect of laptops, tablets and smartphones and their effects on work-nonwork interruptions was an interesting finding. These findings suggest that the more people use these ICT's, the more work-nonwork interruptions they may experience and that smartphones play the most significant role in these interruptions. Due to these findings being more highly correlated to boundary management than the tested personality traits; ICT use will be explored in more depth through the qualitative study. Although, Study One has explored the nature and strength of these relationships, it does not explain how people use their mobile technology in ways that allow this boundary blurring. Many teleworkers would

frequently use laptops for their work, but not all experience a high frequency of work-nonwork interruptions, suggesting that these relationship are likely to be complex. Other studies have shown that ICT's such as smartphones, can be used in a way that reflects the boundary management preferences of the individual (Derks et al., 2016). However, many studies that have assessed this have focussed upon segmentation and integration preferences (Derks et al., 2016 and Piszczek, 2017) which neglects other types of boundary management preferences. In-depth interviews with a group of participants selected based upon a range of different boundary management preferences would allow a deeper exploration of the role of ICT's in a wider range of different boundary management preferences beyond segmentation and integration. This fine grained approach toward exploring how people use ICT's in their boundary management could not be established through the quantitative survey, as it did not inform about the individual strategies that people used and whether personality differences could be seen in these. However Study Two will explore these issues through qualitative research question three, which is:

> *'In what ways does ICT use influence boundary management in individuals who report managing their boundaries in different ways?'*

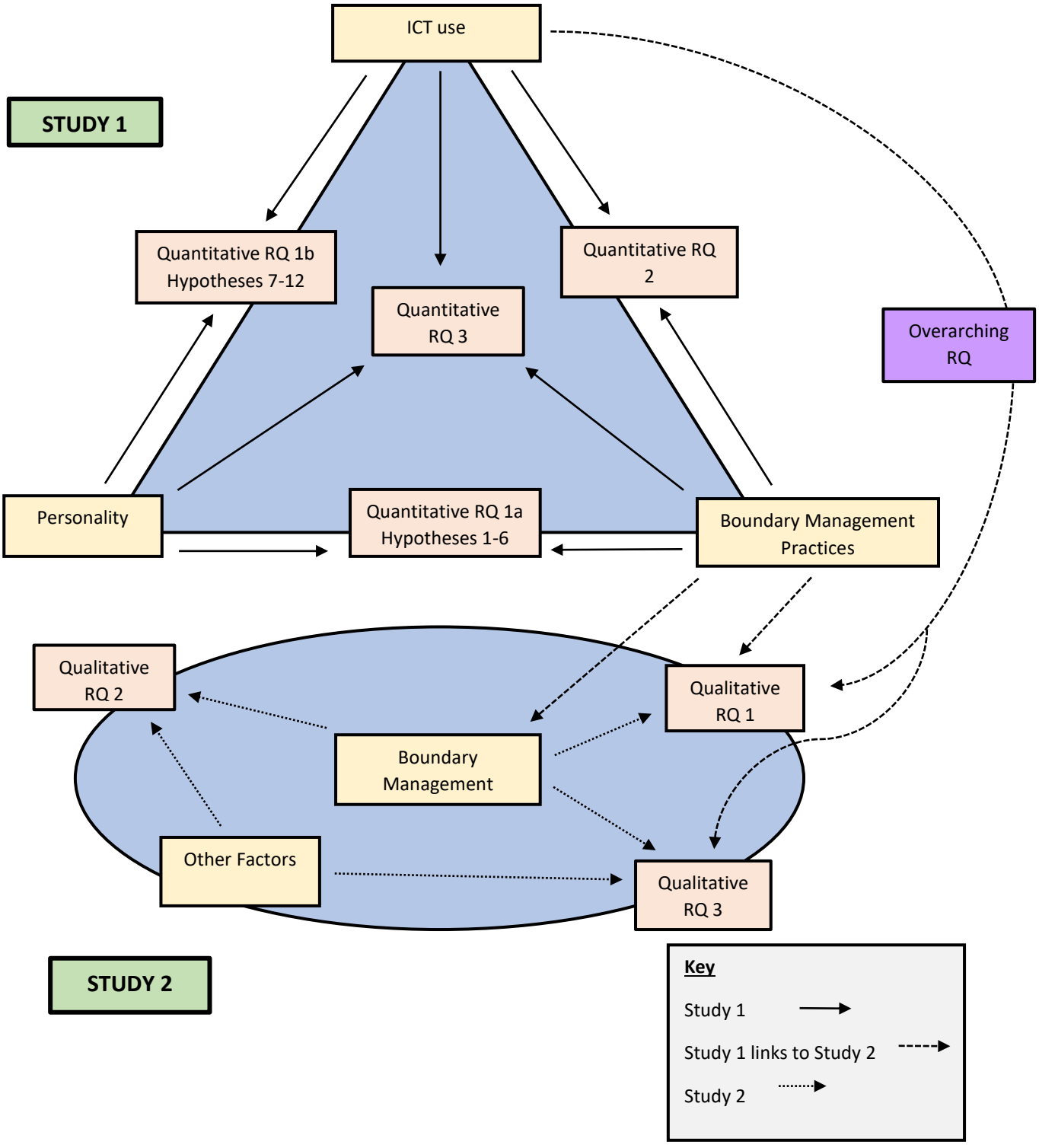
Studies One and Two both emphasise a focus on the importance of the key factors of the overarching research question which was:

> *'Do personality traits and ICT use influence how teleworkers manage their work-nonwork boundary?'*

Study One focuses on boundary management practices in the form of interruptions, Study Two groups participants based on these boundary management practices that were established in Study One. Qualitative research question two, focuses on the exploration of the other potential factors that influence boundary management. This question includes the personality aspect of the overarching research question and also aims to explore other issues, that could be important in boundary management that were not found through Study One. Qualitative research question three focusses on ICT use and the idiosyncrasies of the strategies used in relation to boundary management, tying it in to the ICT part of the

overarching research question. Qualitative research question one aims to explore in more depth the nature of boundary management preferences and how these may function in a home-based teleworking context. Qualitative research question one is interlinked with the boundary management practices element of Study One, because the boundary management groups of Study Two are created out of Study One and form the core element that informs Study Two. Figure Three below is a diagram that illustrates the whole study, including both Study One and Two and how they are joined together.

Figure 3: The Relationships Between the Components of the Mixed Methods Study



This Chapter has presented Study One and its findings and shown that although personality traits and ICT use were both influential in boundary management, personality traits were not as influential as might have been expected. Quantitative Study One has shown the nature and strength of the relationships between work/nonwork interruptions, ICT's and personality traits and answered the three research questions and 13 related hypotheses. However, it did not tell about how the boundary management preferences of individuals might interact with personality and ICT use, or the idiosyncrasies within this process. Study Two will now be presented in the Chapter Five and will investigate the three qualitative research questions, the development of which were described earlier in this section.

Chapter Five
Study Two
Boundary Management Practices, ICT's and Work/Nonwork Boundary Interruptions

5.1 Introduction

This Chapter presents Study Two, the qualitative part of this mixed methods study, which follows from Study One, presented in the last chapter. Section 5.2 will explain the research questions that Study Two aims to answer, before Section 5.3 covers the study design. Section 5.4 discusses the pilot study that was carried out prior to embarking on the main qualitative study and then Section 5.5 details the methods used to carry out the main study. This is followed by Section 5.6 which covers the ethical considerations and then Section 5.7 that discusses the data analysis methods that were used. The results of the main study then follow in Section 5.8, specifically the five subthemes of the overarching theme of 'Boundary Management' are presented. These subthemes are: 'Segmentation', 'Integration', 'Work demands', 'Nature of breaks' and 'Evolving approaches to boundary management' which are presented in that order. Discussion of these themes is then presented in Section 5.9 and this section will be split into three parts. Part one discusses the findings in relation to research question one in Section 5.9.1, part two related to research question two in Section 5.9.2 and part three discusses the findings related to research question three in Section 5.9.3 (a reminder of the research questions can be found in the next Section, 5.2). The presentation of the discussion in this way helps to tie the discussion directly into the research questions and to answer these questions directly. After this discussion has taken place, Section 5.9.4 presents the limitations of the qualitative study and Section 5.9.5 explores the future directions for research that have arisen based upon the study findings. A chapter summary; Section 5.10 is then presented which summarises the whole chapter.

5.2 Research Questions

Study One found that personality traits played a small role in work/nonwork interruptions and that demographic factors had limited influence. Due to these factors playing a minor role, the influence of other factors on interruptions and boundary management practices will be explored in this study, to build on and add to these findings. Most significantly, the importance of ICT usage will be explored in-depth in this study. This study builds on the findings of Study One by exploring the following research questions which were developed in Chapter 4, Section 4.7:

1) *What is the nature of the relationship between the boundary management groups and boundary management practices?*

2) *What factors influence the differences in boundary management groups and practices?*

3) *In what ways does ICT use influence boundary management in individuals who report managing their boundaries in different ways?*

These research questions refer to 'boundary management groups' which are explained and discussed in more detail in Section 5.5.5 below.

5.3 Design

This study uses a multiple case study design with the intention of comparing the cases of individual teleworkers to look for similarities and differences between them and the groups that they have been placed into (Bryman & Bell, 2011). This being so, it is important that there is enough similarity and differences between the cases (Vogt et al. 2014). The similarity is that they all engage in home-based telework and the differences are explored further in Section 5.5.5 where it is explained how the participants were selected based on their boundary management differences. The aim of using a case study design for the second part of this study is to glean rich data from a selection of participants from the sample and to answer the remaining research questions that were developed from the outcomes of Study One. Case studies allow an exploration of the idiosyncrasies in personality, ICT use and boundary management, that were not possible through the survey data, thereby they are

able to extract rich data pertaining to the individual differences of the participants (Punch, 2005). The case study method will go some way to explaining not only the relationships of ICT use to boundary management (as Study One did), but also some of the differences in how and why people use them in the way that they do.

5.3.1 Research Philosophy

This study is from an interpretivist paradigm which aims to explain and understand human behaviour by understanding the subjective meaning of social action (Bryman & Bell, 2011). In the context of this study, it provides a means to explore teleworker's boundary management and technology use patterns and the subjective meanings that are made from these, with an emphasis on gleaning rich data through the differences between the participants (Saunders, Lewis, & Thornhill, 2012). This exploration will enable a deeper understanding of these issues than could be gleaned through the first quantitative study, that came from a positivist viewpoint and provided a bigger picture analysis of relevant variables. This study does not aim to discover a 'truth' but rather explore subjective meanings that are made by the participants in relation to their own boundary management and ICT use and the interaction between these. It assumes that the knowledge generated is constructed through language, shared meaning and interactions with others, as opposed to their being an absolute truth to be discovered (Myers, 2008). As the participants in the study are social actors and present their own version of social reality, the knowledge generated contributes to an understanding of the issues that the teleworkers in this study face in their boundary management, but it cannot be widely extrapolated (Bryman & Bell, 2011).

5.3.2 Data Collection Method: Semi-Structured Interviews

There are three main types of interviews in qualitative research: structured, semi-structured and unstructured (Punch, 2005) and this study used semi-structured interviews to collect data, giving the advantage of flexibility to follow interesting threads in the interview, while maintaining some standardisation (Punch, 2005 and Bryman & Bell 2011). The partial standardisation of semi-structured interviews allowed for comparisons between the participants at the analysis stage. This is important because Template Analysis is largely focussed on between participant comparisons, so there needs to be some commonality in the

data (Brooks, McCluskey, Turley & King 2015). Semi-structured interviews are frequently used in studies using Template Analysis (Waring & Wainwright, 2008) making this an appropriate method for this study.

Semi-structured interviews are particularly apt to produce data that will be analysed through thematic analysis (Howitt & Cramer, 2008) as in this study, because the analysis explores common themes in the boundary management of the participants. Data with these commonalities would likely not be generated with unstructured interviews because these would produce vastly differing participant data (Bryman & Bell, 2011). Semi-structured interviews served to answer the research questions which specifically aimed to explore boundary management techniques and this could be explored best through specific questions (Bryman & Bell, 2011). If unstructured interviews with no set schedule were used, it would have allowed flexibility, but this might have led to highly individualistic data lacking in shared themes. Structured interviews with pre-defined questions and no room for variation between participants, would have given the advantage of standardisation, but flexibility and nuance would have been sacrificed (May, 2001 and Punch, 2005). Further consideration of issues related to interview data can be found in Chapter 5, Section 5.7.6).

In-depth individual interviews were chosen as opposed to focus groups, which was another possible data collection method. The geographical distance between participants means it would have not been possible for everyone to participate in a focus group (Cleary, Horsfall & Hayter, 2014). The research focussed on individuals and their boundary management behaviours and this was more suitably researched through individual interviews than focus groups where there would have been more inter-participant dynamics that may have influenced participants' choices about what they shared (Acocella, 2012).

An interview schedule (see Appendix 5, page 382) was created for the participants to answer and additional exploration of interesting avenues were delved into based on the responses of the individual (May, 2001 and Punch, 2005). The participants' surveys were checked before interview, especially their answers to frequency of ICT use and these were used as prompts, for example, if smartwatch use was indicated but not talked about, I prompted them to glean more data. The interview schedule was based around the following topic areas:

1. *General questions*: The interview started with general, clarifying questions checking whether circumstances changed since completing the survey and questions about technology use and working environment. These initial questions were designed to build rapport, so the participants could feel freer when answering the pertinent, central questions in the interview (Jacob & Furgerson, 2012).

2. *Boundary management during work time*: These questions focussed on how the participants managed their work/nonwork boundary while working, including time and ICT management.

3. *Boundary management during non-work time*: These questions focussed on how the participants managed their work/nonwork boundary while not working, including time and ICT management. Part two and three of the schedule were designed to generate data specifically related to answering research questions one, two and three.

4. *Closing questions*: At the end of the interview the participants were asked if they wanted to add anything else, giving flexibility to mention anything they felt important. Some participants were more open at the end and revealed insight into their viewpoints on the topic.

5.4 Pilot Study

This section will present the pilot study that was conducted prior to the main study including the participants and procedure of the study and then its results.

5.4.1 Participants and Procedure

A pilot study was conducted to identify possible problems in the interview schedule and to avoid contamination of the main study, three non-survey participants were chosen (Van Teijlingen & Hundley, 2001). Michael, Sarah and Paul were interviewed and as they had not completed the survey, their work/nonwork boundary categories were not known. Michael was recruited via LinkedIn and the other two were known to the researcher (Participant details can be found in Appendix 4.1, page 373). Michael and Sarah were interviewed first and changes made to the schedule based on their feedback. The revised schedule was tested with Paul before making minor adaptations to create the final schedule used in the main

study. The interviews took place via Skype, were recorded and listened to for clarification when developing the schedule. After being asked the questions in the schedule, the participants provided feedback on the interview schedule.

5.4.2 Results of the Pilot Study

The results and adaptations are summarised below, as suggested by Van Teijlingen & Hundley (2001). Based on feedback from Michael and Sarah, extra prompts were included in each section of the schedule to enable more probing if necessary and the schedule was laid out more clearly. A third interview with Paul was carried out based on the minor changes made to the schedule. Paul suggested using the term 'technology' rather than ICT and clarifying question seven about peoples' activities external to work. He suggested it would be clearer for question seven to be split in two to differentiate between 1) things people do in their spare time and 2) non-work responsibilities such as childcare, shopping and cleaning. Paul spent less time answering questions related to work-nonwork interruptions, his boundary management style may have been reflected in this and he had less to talk about. As the questions were based around interruptions, this could also have happened with participants in the main study who had fewer interruptions in one sphere or the other. A few extra prompts were added to the schedule so that in cases where this did occur, maximum data could be collected.

5.5 Main Qualitative Study Methods

After final changes were made to the schedule based on the pilot study, the main study was carried out and is presented in the sections below.

5.5.1 Materials

The materials used in this study were: completed surveys, interview schedule, notebook, laptop, smartphone, audio recorder, Skype and Google Video Call.

5.5.2 Procedure

The interviews were conducted by Skype, Google Videocall and telephone according to the preference of the participant, which was particularly suitable for teleworkers, because of their geographical distance. Teleworkers commonly use ICT's such as telephones and Skype to hold meetings with colleagues, so interviews by these mediums are a particularly appropriate choice for the participants in this study (Bryman & Bell, 2011). Most interviews were sound only, with a few in visual real time. Prior to interview, the completed survey of each interviewee was assessed, reviewing basic information, ICT use and working conditions to prepare for appropriate prompts and to clarify the interviewees position at the time. The participants personality trait data was not assessed so as not to prime the interviewer during the interview or analyses.

Notes were made at the end of each interview, giving a short summary and noting anything significant arising from the interview as suggested by (Howitt & Cramer, 2008 and Bryman & Bell, 2011). The interviews were audio recorded and the researcher verbatim transcribed the interviews which included expressions such as sighs, pauses and coughs. The process of transcription is a research activity in its own right and is not merely a procedural feature of research (McLellan, MacQueen & Neidig, 2003), so the recordings were listened to several times to ensure quality of transcripts and checked thoroughly for accuracy, which facilitated immersion into the data and drew attention to points that could have been missed otherwise (Vogt et al., 2014, Bryman & Bell 2011 and Howitt & Cramer, 2008).

5.5.3 Participants

Twenty participants were interviewed, the shortest interview lasted 21 minutes and the longest one hour and 11 minutes (*M* = 41 minutes 18 seconds). This section will outline participant information and selection procedure.

5.5.4 Characteristics of the Pool of Participants in the Interview Stage of the Study

Out of 391 survey respondents, 143 expressed an interest in a follow up interview. In the participants selecting for an interview; the length of time teleworking was 7.7 years (*M* = 92.2

months, *MED* = 71 months or 5.9 years, *SD* = 87.65), indicating they had slightly more experience in teleworking than those not opting for an interview 7.3 years (*M* = 88.3 months *MED* = 60 months or 5 years, *SD* = 86.48) although the differences were not significant. Chi-square tests of independence were performed to examine the relations between the demographic and other relevant variables and self-selection into the interview stage of the study. No significant relationship between age, relationship status, number of children under 18, industry category, job category or employment status and self-selection into the interview stage were found, indicating those in the interview pool were similar to those who opted out in these respects.

The relationship between gender and self-selection into the interview stage was significant, $\chi^2(1, N = 388) = 11.64$, $p = .01$, as was the relationship between country and self-selection into the interview stage, $\chi^2(1, N = 385) = 5.53$, $p = .02$. Taken together these results indicate that males and non-UK residents were more likely to opt for an interview and were over-represented in the interview pool in comparison to the total participants who completed the survey. There may also be self-selection bias in the sample, because by choosing to participate in an interview may mean that they are more interested in telework as a topic and more open to discussing it than those who opted out (Robinson, 2014).

5.5.5 Selection Procedure for the Interviews

The participants selected for an interview were categorised into work/nonwork boundary management categories based on their scores from the WorkLife Indicator (Kossek et al., 2012), interruptions scales measuring work-nonwork interruptions and nonwork-work interruptions. These categories were newly developed based on two of the five scales from the WorkLife Indicator and so are different from the six boundary management groups used by Kossek and colleagues (2012). This study uses the WorkLife Indicator measurement tool to place participants into new groups, but not the six original groups associated with it. Nine possible categories were formulated based on the interruptions scales scores and are displayed in Table 20 below and their development explained further in this section.

Table 20: The Nine Overarching Work/Nonwork Boundary Categories

Number	Category
1.	High nonwork-work interruptions and high work-nonwork interruptions
2.	High nonwork-work interruptions and medium work-nonwork interruptions
3.	High nonwork-work interruptions and low work-nonwork interruptions
4.	Medium nonwork-work interruptions and medium work-nonwork interruptions
5.	Medium nonwork-work interruptions and low work-nonwork interruptions
6.	Medium nonwork-work interruptions and high work-nonwork interruptions
7.	Low nonwork-work interruptions and low work-nonwork interruptions
8.	Low nonwork-work interruptions and high work-nonwork interruptions
9.	Low nonwork-work interruptions and medium work-nonwork interruptions

To categorise the participants, a composite of their scores on the interruptions scales were used to give a total score for each scale. The work-nonwork scale consisted of six questions (minimum score six and maximum 30). The nonwork-work scale consisted of five questions (minimum score five and maximum 25). The standard error of differences (minimum reliable difference calculation (MRD)) (Field, 2013) was calculated to establish categories that were one *SD* point away from each other, thereby establishing definite differences between the categories. As differences in the categories were explored through research questions one and two, the groups needed to be distinctly different, to answer the research questions adequately. The MRD calculations resulted in splitting the scale scores into the following categories shown in Table 21 below.

Table 21: The Scoring Range of Each Work/Nonwork Boundary Category Based on the Minimum Reliable Difference Calculations

Type of Interruptions	Scoring Category	Scoring Range
Work-Nonwork	Low score	16 or less
	Medium score	17-22
	High score	23 or more
Nonwork-Work	Low score	15 or less
	Medium score	16-20
	High score	21 or more

Participants were placed into the above categories based on their scores on the two scales. Out of the nine categories, five are most different from each other and displayed the widest variations in boundary management styles and these are shown in Table 22 below. These five groups were taken forward for exploration in the qualitative study.

Table 22: The Five Boundary Categories Showing the Widest Variation Across the Data

Number	Work-Nonwork Boundary Management Category
1.	High nonwork-work interruptions and high work-nonwork interruptions
2.	High nonwork-work interruptions and low work-nonwork interruptions
3.	Medium nonwork-work interruptions and medium work-nonwork interruptions
4.	Low nonwork-work interruptions and low work-nonwork interruptions
5.	Low nonwork-work interruptions and high work-nonwork interruptions

Figure Four below shows the nine total groups, with the groups highlighted in blue being the five categories that were taken further for exploration in this study and the groups in white are the other four groups that were not explored further. These five categories in blue, showed the widest variation because they are the most different from each other. Participants in category two (category numbers from Table 22 above) for example, would have high frequencies of nonwork-work interruptions but low frequencies of work-nonwork interruptions, indicating that they handle the spheres very differently, whereas category five displays the opposite pattern. Categories one and four have opposite patterns from each

other with one integrating and four; segmenting. Category three falls centrally, with moderate frequencies of both types of interruptions, indicating both spheres are similar. The other categories were excluded due to having less well-defined differences between groups.

Figure 4: The Nine Total Boundary Management Groups and the Five Groups Chosen for Further Analysis Highlighted in Blue

← **Degree of Nonwork-Work Interruptions**

High Nonwork-Work **Low Work-Nonwork**	**Medium Nonwork-Work** **Low Work-Nonwork**	**Low Nonwork-Work** **High Work-Nonwork**
Medium Work-Nonwork **Low Nonwork-Work**	**Medium Nonwork-Work** **Medium Work-Nonwork**	**Medium Nonwork-Work** **High Work-Nonwork**
Low Work-Nonwork **Low Nonwork-Work**	**Medium Work-Nonwork** **High Nonwork-Work**	**High Work-Nonwork** **High Nonwork-Work**

Degree of Work-Nonwork Interruptions →

Recent studies have explored the influence of mobile technology such as smartphones on the work-nonwork boundary and how individuals with different boundary preferences use them (Derks & Bakker 2014 and Derks et al., 2015). However, these studies tend to focus on two boundary preferences: segmentors and integrators and do not go beyond these, but there is evidence that boundary management preferences are more multifaceted than segmentation and integration (Kossek et al., 2012). Derks et al. (2016) found that the relationship between segmentation preference and work-life conflict was more complicated than first thought. Interruptions may be experienced from one sphere into the other but not vice versa (Montgomery et al., 2009) suggesting that integration itself is more complex. This study will explore boundary management preferences that take into consideration these differences going beyond segmentation and integration, through the creation of these five categories that allow for an exploration of a wider range of boundary management preferences.

A purposive sampling strategy was used with the aim that participants in each of the five non-overlapping groups would have vastly different characteristics and perspectives on their boundary management, which could be compared within the study (Robinson, 2014 and Bryman & Bell, 2011). The five chosen categories give the widest selection of differences in the data and the most distinctively different groups and in order to answer research question one which was: '*What is the nature of the relationship between the boundary management groups and boundary management practices?*' It was important to ensure that well-defined categories and a rigorous participant selection procedure were used. These categories go beyond exploring 'segmentors' and 'integrators', by people who deal with the two spheres very differently, thereby taking into consideration that boundary management preferences are more complex (Cohen, et al., 2009, Golden & Geisler, 2007 and Hislop & Axtell, 2011) and exploring a wider range of preferences.

Four participants from each of the five categories were selected based on their representativeness of each group (Alvesson & Ashcraft, 2012) and representativeness was based on the following criteria:

1. High nonwork-work interruptions and high work-nonwork interruptions (highest scoring individuals in both scales)

2. High nonwork-work interruptions and low work-nonwork interruptions (highest scoring in the former and lowest in the latter with biggest difference between the two)
3. Medium nonwork-work interruptions and medium work-nonwork interruptions (individuals scoring most centrally out of the mid scoring range in both spheres)
4. Low nonwork-work interruptions and low work-nonwork interruptions (lowest scoring individuals in both scales)
5. Low nonwork-work interruptions and high work-nonwork interruptions (lowest scoring in the former and highest in the latter with biggest difference between the two).

Participants were placed in list order based on the above criteria and invitations to participate sent out by email. A second reminder was sent and if there was no response after two invitations, the next person on the list was sent an invite until four participants for each group were recruited. There was a low response in the high nonwork-work, low work-nonwork interruptions group, and only two agreed to an interview. Two participants (Karen and Robin) were included in this category as they had the biggest score gap between nonwork-work and work-nonwork interruptions out of the entire pool.

5.5.6 Relabelling the Categories

The five categories for analysis are shown above in Figure Four and these groups were relabelled to represent the boundary management behaviours that might be expected from people within the group. The labels given were designed to make it more easily readable and to understand the nature of boundary management within each group. For example 'High nonwork-work and low work-nonwork' was relabelled as 'Family Boundary Protector' because people in this group allow fewer interruptions into their non-work time suggesting that they protect this boundary, but the same does not apply for their work boundary which is more permeable to non-work interruptions. 'Work Boundary Protectors' showed the opposite pattern to 'Family Boundary Protectors'. The group with a high degree of interruptions in both directions were labelled 'Strong Integrators' because the high frequency of interruptions indicate a strongly integrated boundary management style. The group with a low frequency of interruptions in each direction were labelled 'Strong Segmentors' because

the minimal interruptions indicate a preference for segmentation. The central group with moderate interruptions were labelled 'Moderate Managers' because their scores indicated moderate interruptions and that people in this group may gravitate toward both segmentation and integration at different times. Table 23 below illustrates the original boundary management groups based on the survey scores, the new label for each group and a short description of what each group's boundary management may be like.

Table 23 : The Original Groups Based on Their Survey Scores, the New Labels for Each Group and a Description of the Boundary Management Characteristics of Each Group

Original Group Based on Survey Scores	**New Label for the Group**	**Characteristics of the Group**
High work-nonwork and high nonwork-work	Strong Integrators	A high level of interruptions from both spheres into the other. Strongly integrative behaviours.
High nonwork-work and low work-nonwork	Family Boundary Protectors	A high level of interruptions from non-work into the work sphere, but a low number from work into non-work. The non-work boundary is 'protected' from work influences but this does not occur the other way.
Medium nonwork-work and medium work-nonwork	Moderate Managers	A moderate level of interruptions between spheres in both directions indicating a moderate degree of integration. Individuals may switch between integration and segmentation preferences.
Low work-nonwork and low nonwork-work	Strong Segmentors	A low level of interruptions from both spheres into the other. Strongly segmenting behaviours.
Low nonwork-work and high work-nonwork	Work Boundary Protectors	A high level of interruptions from work into the non-work sphere, but a low number from non-work into work. The work boundary is 'protected' from work influences, but this does not occur the other way.

5.5.7 Participant Information

The work/nonwork boundary category and scores of the participants are displayed in Table 24 below.

Table 24: Scale Scores and Boundary Groups of Participants

Participant Pseudonym and Number	Nonwork-Work Interruptions Score (out of 25)	Work-Nonwork Interruptions Score (out of 30)	Boundary Management Category
Oliver (266)	13	12	Strong Segmentor
Kate (192)	13	12	Strong Segmentor
Rochelle (197)	14	10	Strong Segmentor
Oona (220)	14	14	Strong Segmentor
Maxwell (377)	13	23	Work Boundary Protector
Gary (40)	14	24	Work Boundary Protector
John (316)	15	23	Work Boundary Protector
Jill (55)	15	24	Work Boundary Protector
Paula (375)	17	18	Moderate Manager
Karl (261)	16	17	Moderate Manager
Angela (199)	19	20	Moderate Manager
Christina (61)	16	17	Moderate Manager
Jeremy (350)	22	13	Family Boundary Protector
Evie (24)	21	13	Family Boundary Protector
Karen (144)	20	14	Family Boundary Protector
Robin (127)	20	12	Family Boundary Protector
Jools (121)	23	28	Strong Integrator
Georgina (188)	24	29	Strong Integrator
Helena (13)	24	27	Strong Integrator
Serena (190)	23	30	Strong Integrator

The participants and the categories that they were placed in are demonstrated in Figure Five below.

Figure 5: Work-Nonwork Boundary Category Groups with Participants Displayed in Each Group

Family Boundary Protectors Jeremy Evie Karen Robin		**Work Boundary Protectors** Maxwell Gary John Jill
	Moderate Managers Paula Karl Angela Christina	
Strong Segmentors Oliver Kate Rochelle Oona		**Strong Integrators** Jools Georgina Helena Serena

Demographic and work-based information for the participants is shown in Table 25 below (a pen portrait giving detailed information about each participant can be found in Appendix 4.2). Table 25 below shows that the participants in this study spent considerable time working from home (minimum 13 hours, maximum 60 hours per week) with 14 out of 20 participants working more than 20 hours per week from home. This indicates that they may be suitably experienced and well placed to provide feedback on their teleworking practices.

Table 25: Participant Information and Characteristics

Participant (Pseudonym)	Gender	Age Range	Country of Residence	Relationship Status	Number of Children under 18	Length of Time Working from Home	Total Average Working Hours Per Week	Average Hours Working From Home Per Week	Employment Status	Industry
Strong Segmentors										
Kate	Female	40-49	UK	Married or domestic partnership	2	10 years	30	30	Self -Employed	Government
Rochelle	Female	50-59	UK	Married or domestic partnership	0	11 years	44	30	Employee	Manufacturing
Oliver	Male	31-39	UK	Married or domestic partnership	1	8 years	45	25	Self-Employed	Outsourcing, Property and Procurement
Oona	Female	40-49	UK	Married or domestic partnership	0	2 years and 6 months	25	15	Self-Employed	HR, Training and Wellbeing

Work Boundary Protectors										
Maxwell	Male	50-59	France	Single	0	7 years	60	60	Self-Employed	Computer Graphics
Gary	Male	31-39	UK	Married or domestic partnership	0	1 year and 6 months	46	42	Part-Time Employed/ Part-Time Student	Education
John	Male	40-49	Canada	Married or domestic partnership	3	8 years	50	50	Employee	Information Technology
Jill	Female	50-59	UK	Married or domestic partnership	0	3 years and 2 months	40	37	Self-Employed	Health Industry
Moderate Managers										
Paula	Female	31-39	Ireland	Married or domestic partnership	1	3 years	40	16	Employee	Information Technology
Angela	Female	40-49	UK	Single	0	13 years	40	30	Self-Employed and Employee	Nutritional Therapy

Karl	Male	60-69	UK	Married or domestic partnership	0	14 years and 6 months	50	40	Self-Employed	Electronics and Packaging
Christina	Female	40-49	USA	Married or domestic partnership	2	8 years	25	13	Self-Employed	Accountancy
Family Boundary Protectors										
Jeremy	Male	26-30	UK	In a relationship (non-cohabiting)	0	7 years and 6 months	35	28	Self -Employed	Online Marketing
Evie	Female	26-30	UK	Married or domestic partnership	0	4 years and 1 month	35	27	Employee	Parliament
Karen	Female	50-59	USA	Married or domestic partnership	1	12 years	28	28	Self-Employed	Transportation Research
Robin	Male	26-30	USA	Single	0	1 year 6 months	42	18	Employee	Medical Research

Strong Integrators										
Jools	Male	31-39	UK	Married or domestic partnership	0	3 years	50	40	Self-Employed	Marketing Science
Georgina	Female	31-39	USA	Married or domestic partnership	2	2 years and 8 months	20	15	Self-employed	Education
Helena	Female	26-30	UK	Married or domestic partnership	0	5 years and 4 months	More than 70	40	Self-Employed	Sales
Serena	Female	26-30	UK	In a relationship (non-cohabiting)	0	9 months	60	16	Part-Time Employed/ Part-Time Student	Education

5.5.8 Sample Size

After categorising the participants, some categories had more participants than others and there was attrition, as some participants did not respond to requests for an interview. For these practical reasons (Robinson, 2014) four participants were interviewed in each category and it would not have been possible to have more than four participants per category without having unequal numbers in each group. However, the most common sample size in qualitative PhD studies using interviews was found to be 20 by Mason (2010), other mixed methods studies using Template Analysis, have used 20 participants before reaching saturation (Hargreaves, 2014) and it is recommended that Template Analysis studies use between 15 and 30 cases (King, 2012). Therefore 20 cases was adequate for this study.

5.6 Ethics

This study was carried out according to the BPS Code of Ethics and Conduct (2009), the BPS Code of Human Research Ethics (2010) and BPS Ethics Guidelines for Internet Mediated Research (2013). An application was submitted for the qualitative study and cleared through Loughborough University ethical procedures. An information sheet and consent form (see Appendix 1.2, page 333) were sent to the participants via email and all were received back before commencing interviews. Participants were over 18, the interview was not aimed at vulnerable groups, did not involve deception and was not based around a sensitive topic. Before starting, participants were informed that they were able to withdraw during the interview and did not have to answer questions that they did not wish to. Contact details of the principle researcher and Loughborough University research ethics office were included on the information sheet. The recorded interviews and transcribed data were stored on password protected devices and not shared with anyone outside of the study.

5.7 Data Analysis

The qualitative interview data was analysed using Template Analysis, the process of which is outlined below.

5.7.1 Template Analysis

Template analysis is a form of thematic analysis developed in the United States in the 1990's, is becoming increasingly popular in the UK and widely used in qualitative business and management research (Brooks et al., 2015). King's definition is:

> *'The essence of template analysis is that the researcher produces a list of codes ('template') representing themes identified in their textual data. Some of these will usually be defined a priori, but they will be modified and added to as the researcher reads and interprets the texts. The template is organized in a way which represents the relationships between themes, as defined by the researcher, most commonly involving a hierarchical structure'* (2004, 258).

Template Analysis shares some resemblance to general Thematic Analysis as described in Braun & Clarke (2006) as both are flexible and have hierarchical codes. However, there are no limitations on the number or levels of codes in Template Analysis, but Braun & Clarke (2006) suggest up to two levels in general Thematic Analysis (Brooks et al., 2015). This being the case, Template Analysis enables a deeper exploration of the themes and with fewer limitations than utilising general Thematic Analysis alone.

5.7.2 Using Template Analysis

Template analysis is particularly suitable for this project as it contains between 15 and 30 cases and it can accommodate more cases than Interpretative Phenomenological Analysis (IPA), which was a potential alternative method:

> '*an approach to qualitative analysis with a particularly psychological interest in how people make sense of their experience. IPA requires the researcher to collect detailed, reflective, first-person accounts from research participants. It provides an established, phenomenologically focused approach to the interpretation of these accounts*' (Larkin & Thomson, 2012).

The intense focus of IPA on individual cases is extremely in-depth, so recommended for up to ten cases (King, 2012). This study focusses on five categories of participants and making comparisons between rather than within participants, so it required more than ten cases to generate enough data for the purpose and therefore thematic Template Analysis was more appropriate. Similarly, although using Template Analysis is less in-depth than IPA and it may

miss some idiosyncrasies of individual participants, it considers broader themes from the entire data which is more appealing, as the intention in this study is to establish the boundary management issues of the entire spread of participants (King 2004 and Brooks et al., 2015). This study has five groups of people with differing boundary management practices and IPA is more suited to homogenous cases rather than widely differing ones (Howitt & Cramer, 2008).

This study uses an interpretivist approach, so the flexibility of Template Analysis is ideal because it can be used within a range of philosophical approaches including: positivist and interpretivist approaches (King 2012), including a phenomenological stance (Waring & Wainwright 2008, Tabari, Wilson & Ingram 2016, Wyatt & Sylvester 2015, Barker 2013, Brooks et al., King 2015). Thematic analysis can be used in conjunction with Template Analysis (Brooks, Kime, King, Wearden, Gillibrand, & Campbell, 2015) which this study bodes well with, as it uses Thematic Analysis to analyse the data working within the structure of the template. It is an appropriate choice to explore the similarities and differences of the five different groups in the context of teleworking, because this method is frequently used for comparing different perspectives within a specific context (King, 2004). It has also been used previously in mixed methods research with similar sequential designs to the current study (Hargreaves, 2014).

Using Template Analysis in this study adds robustness to the method as it gives clear definition of how the analysis took place (see Section 5.7.3 and 5.7.5 below and Appendix 6.1-6.4, page 385 for the template development) giving more structure than Thematic Analysis alone, which has been criticised for lacking structure and clarity in its methods (Waring & Wainwright, 2008). The level of flexibility that Template Analysis offers, facilitates developing hierarchical, lateral and parallel coding and no fixed number or levels of codes, so it can be flexible around the data and allows freedom to the way that the analysis develops (King, 2004). This is ideal for this project because although there were a priori codes (discussed in the next Section, 5.7.3), the researcher did not want to limit the development of the codes.

5.7.3 A Priori Themes

Template Analysis is ideal for this study because it has specific areas that require analysis to directly answer the research questions and the method works better where there are some

a priori themes (King, 2004). Although there are a priori themes in this study, it does not mean that they were rigidly adhered to throughout the analysis process, because Template Analysis gives flexibility of modifying and changing the template throughout and does not require that data is forced into the template. It was not assumed that the initial themes would maintain a particular order, or level of importance throughout the analysis, which allowed for the end template to be very different from the initial, because the template developed as the data was analysed (King, 2012).

In this study, broad a priori themes were selected for attention throughout the analysis of the data, while at the same time keeping an open mind to other themes that emerged so that they were not missed or excluded. This means that the codes were not set too early in the template development but were fluid and changing for several templates until the whole of the data had been explored. It was possible to maintain an open attitude towards the data and the a priori codes did not mean that other emerging themes were ignored (Brooks et al., 2015). In this type of analysis, the a priori themes may be changed, removed or switched in the hierarchy equally as much as any other theme emerging in the analysis if they do not adequately define the data (Brooks et al., 2015). In this study, there was change throughout the analysis as can be seen in the templates included in Appendices 6.1-6.4, starting page 385.

The a priori themes were tentatively defined in advance and were refined as the analysis progressed (King, 2012). The themes chosen focussed on important concepts related to the research questions to ensure that they were covered in significant depth (Brooks et al., 2015). The following four a priori themes were chosen based on their relevance to answering the research questions, the interview schedule and after listening to the recordings in the process of transcription as suggested by Waring & Wainwright (2008), King (2012) and King (2004).

1. ***Boundary Management***. The interview schedule primarily focussed on boundary management during work time and boundary management during non-work time. Boundary management was particularly pertinent to all three research questions and important to explore in-depth.

2. ***Technology***. Technology use, particularly related to boundary management was the core of qualitative research question three, with questions included in the schedule

to explore this. Based on listening to and transcribing the interviews, it was clear that there was substantial data generated on technology use.

3. ***Personality (Individual Differences)***. The theme of personality is an important aspect of the research and has been explored through the quantitative element of the study with modest links to boundary management found for some of the personality variables. An a priori theme was included for personality to explore qualitatively, if personality functions within the wider aspects of boundary management and whether patterns or interactions with boundary management could be established. This is linked to qualitative research question two.

4. ***Teleworking.*** All participants were home-based teleworkers and the interview items focused on the participants in this work context. It was important to include this to investigate the potential link between telework practices as a factor in boundary management, thereby feeding in to qualitative research questions one, two and three and the overarching research question.

The initial template and subsequent versions showing the development process can be found in Appendices 6.1-6.4 starting at page 385.

5.7.4 Manual Analysis of the Data

The data was analysed manually without the use of a computer software package. Use of software packages such as NVIVO can have the disadvantage of distancing the researcher from the data (Davis & Meyer, 2009 and Welsh, 2002). Manually coding and analysing the data allowed full immersion into the data, which is a crucial part of the interpretive process (Waring & Wainwright, 2008) and tactile handling of the data gives a level of closeness that might be difficult to obtain otherwise (Basset, 2004). Using software is less advantageous in projects with a small dataset (Seror, 2005) such as this project which had 20 interviews. Software packages manage data, but do not remove the need to code and interpret or rule out human error (Bazeley & Jackson 2013, Davis & Meyer 2009 and McLafferty & Farley 2013).

To provide transparency and quality checking in the manual analysis process that packages like NVIVO provide (Seror, 2005 and Welsh 2002), records were kept at each stage of the analysis, including notes on template development and a copy of each template as it changed

throughout the process. The data was checked with supervisors throughout the analysis process increasing transparency and accuracy by sharing the data with other researchers (Welsh, 2002). During early template development, a set of selected chunky quotes from across the participants' data was shared and coded by all, checking for similarity and difference in coding the data. As more transcripts were analysed, a second set of quotes were shared and checked. The range of quotes were selected based on covering as many codes found in the data as possible and including data from across the range of participants. One whole transcript was then coded by all to check for similarity and against the template. In the later stages of analysis, reports of the overarching themes and their subthemes including quotes, were collated and read by supervisors, checked against the template, discussed and adaptations made before reaching agreement on the final themes, subthemes and template (Vogt et al., 2014).

NVIVO counts the frequency of themes making it easier to see overall patterns in the data (Welsh, 2002) and in this study, diagrams were made to explore how the themes interacted with each other. At the end of the analysis, the frequencies of themes were counted (as NVIVO would have done) and a discussion about how this was used and issues involved in frequency counting in qualitative research is covered in Section 5.7.6, page 202.

5.7.5 Template Development and Analysis Procedure

The data was analysed and template developed in the following stages:

1. Transcripts of the interviews were created by the researcher and checked carefully before formally analysing the data (Howitt & Cramer, 2008).

2. The four a priori themes of 1) boundary management 2) technology 3) personality/individual differences and 4) telework were formed based on the interview schedule (King, 2004), initial readings of the transcripts and the research questions (King, 2012) as explained in the section 5.7.3, 'A Priori Themes' above.

3. One transcript from each of the five categories were selected and analysed using highlighters and coding in the margins to create the first template as King (2012) suggests that the initial template should be developed out of a subset of the data. The longest of each was chosen so that the most substantial amount of data from each

category was dealt with first, each category was equally covered and prevented over-emphasis on one boundary management category, thereby not biasing the template toward one category. There is no specific rule on how much data needs to be analysed to create the initial template (King, 2012), but as there was a lot of rich data in these five transcripts, the first template was created after analysing these. When developing the initial template, the preliminary codes were clustered into groups where hierarchical and lateral themes were identified. Paper copies of the quotes were moved around into different piles based on their similarity (Howitt & Cramer, 2008 and Vogt et al., 2014). Other codes that did not fit directly were classified as 'uncategorised'.

4. This process was repeated with the next five longest transcripts, one from each category. These were coded, paper copies of the quotes were placed into the piles of quotes and the template was adjusted to accommodate the new data, creating template two. This was repeated two more times, with transcripts 11-15 coded and added into the template, creating template three and then the final five transcripts 16-20 coded and added into the template creating template four.

5. Each transcript was then read through again so that they were all examined twice as suggested by King (2004) and based on the review, some extra codes were added to the transcripts and some codes collapsed together due to overlap.

6. The themes and subthemes were placed into an Excel Document and the frequency of each was counted and the number of times they arose for each participant. The frequency of a theme is not necessarily an indicator of its importance (King, 2004), but quantification of the themes gives an overall view of their fit into the entire dataset. Based on this frequency count of the themes, some were removed as they did not feature frequently across the participants, but were more localised. The final template was developed at this stage because the template adequately covered the dataset.

7. An additional step was conducted by creating a catalogue of boundary management behaviours by reading through each transcript and writing a list of boundary management behaviours related to 1) use of smartphones 2) use of laptops, 3) general

technology use (to explore research question three) and 4) non-technology behaviours that influenced the work/nonwork boundary (to explore research question two). These were placed into a table (see Table 37, Appendix 6.6, starting on page 395) that categorised the behaviours in terms of their potential influence on the work/nonwork boundary into the following categories:

1) Reduces nonwork-work interruptions
2) Increases nonwork-work interruptions
3) Reduces work-nonwork interruptions
4) Increases work-nonwork interruptions
5) Reduces both (segmentation)
6) Increases both (integration)
7) Reduces work-work interruptions
8) Increases work-work interruptions

The frequencies of these behaviours were counted and tables created (see Appendices 6.7-6.12, pages 443-450) to analyse these frequencies to assist in informing the analysis of boundary management interruptions for each group.

8. After completing steps one to seven above, the data was then analysed in relation to each of the five boundary management categories. This was done by analysing the tables in step seven and the quotes that were part of each theme in the template. They were explored to look for patterns, similarities and differences between and within the boundary management categories to assist in answering research questions one to three.

9. Mind map diagrams were created to visually display the connections in the data until a final diagram was settled upon.

5.7.6 Frequency Counting Interview Data

A frequency count of the themes and boundary management behaviours were conducted for two reasons. Firstly, as the data was manually analysed, the frequency count enabled checking how frequently the themes arose and that they were not localised or anecdotal. In cases where there were few quotes for a theme or when they were not well distributed across

most of the participants, these subthemes were excluded from the final template. The frequency count was carried out as a quality check to add to the robustness of the study and creating an audit trail (Sandelowski, 2001 and Sandelowski, Voils & Knafl, 2009) with counting replacing the function that NVivo would have carried out. Secondly, frequency counting assisted with looking for patterns in the data that may not have been identifiable otherwise (Sandelowski, 2001 and Neale, Miller & West 2014). Counting frequencies in qualitative data analysis is commonly used whether consciously or unconsciously as establishing that a pattern or theme is common involves numerically defining the data in some way (Neale et al., 2014). However, as the data was from semi-structured interviews, they lacked complete standardisation and the perspectives of the participants were subjective (Vogt et al., 2014, May, 2001 and Punch, 2005) meaning that some participants generated more data and subsequent quotes than others. This being the case, it might be expected that some participants data would feature more prominently in the count. In this study, Maxwell (Work Boundary Protector) talked a lot about his feelings of isolation, but did not go into as much depth as the other participants on more pertinent matters, so his data is more limited than the others. So, the frequency count is not a perfect analysis tool, but rather serves to give an overall picture of the data as a whole and it took place at the end of the analysis as an additional step, rather than being central to the analysis. Likewise, the identification of patterns within this dataset only supports the prevalence of themes within it, limiting its inferences outside the sample (Neale et al., 2014 and Fakis, Hilliam, Stoneley & Townend, 2014).

5.8 Overview of the Results

This section will outline the results of the main study, firstly by presenting the whole final template that shows all of the themes and subthemes that emerged from the data later in this section. However this whole template contained a large amount of data and so the whole template cannot be discussed and analysed in full, due to time and space restrictions. The first theme in the template is 'Boundary Management' and its subthemes will be presented in-depth, as this theme is the most pertinent to answering the three research questions. The other themes in the template including 'Work Crafting' will not be covered, because they are not central to the research questions and it would not be possible to do justice to these

themes without completing a whole new literature review. Therefore following presentation of the template, Section 5.8.1 will present the overarching theme of Boundary Management and its nature and Table 26 which will give a summary of the boundary management behaviours found to be common in each of the five boundary management categories. Each of the five subthemes are then presented in detail in the order that they appear in the template. Section 5.8.1.1 shows the first subtheme of Boundary Management which is 'Segmentation' , the second subtheme 'Integration' follows in Section 5.8.1.2 , then 'Work demands' in Section 5.8.1.3 , followed by 'Nature of Breaks in Section 5.8.1.4 and finally 'Evolving approaches to boundary management via social comparisons' in Section 5.8.1.5 Each subtheme that is presented will contain its own summary section, drawing together what has been found before moving on to the next subtheme for analysis.

The selection of quotes from the data for presentation in this section, was determined by two criteria. Firstly, that the majority of participants were represented in the final presentation of the data with a sample from most of the participants, as advised by Cleary et al. (2014) to show that the data spans across the majority of participants. Secondly, the quotes were selected based on the ones that best illustrated the nature of the theme being presented. The themes and subthemes within the data were frequency counted as a quality check to ensure that the themes spread across the whole of the data. Table 36, Appendix 6.5, page 395 contains the frequency count table for the theme of Boundary Management. Personality did not emerge strongly in the data and so it was difficult to draw conclusions about the FFM traits from the qualitative data. This is discussed in more depth in Chapter Six, Section 6.2, page 283.

The final template showing all of the themes and subthemes derived from the data is presented below.

Final Template

A) Boundary Management

1. ***Segmentation***
    - i) Proactive strategies to create a technology-temporal boundary
    - ii) Slowing down
    - iii) Defining where the boundary lies
    - iv) Proactively managing people
2. ***Integration***
    - i) Via ICT's
    - ii) Time chunking
    - iii) Work-nonwork conflict
3. ***Work demands***
    - i) Circumstances of the work
    - ii) Peak-time responding
4. ***Nature of Breaks***
    - i) Changing tasks
    - ii) Using ICT's during breaks
5. ***Evolving approaches to boundary management via social comparisons***
    - i) The process of comparing the perceived social norms
    - ii) Learning from the perceived negative behaviours of others

B) Crafting Work

1. ***Telework***
    - i) Creating opportunities to craft work
    - ii) Creating the need to craft work
2. ***Crafting conditions***
    - i) Creating workspaces
    - ii) Creating psychological conditions for work
    - iii) Using ICT's to craft conditions
3. ***A work in progress***
    - i) Managing the boundary over time
    - ii) Evolution in the management of interruptions
    - iii) Future goals and reflexivity

C) Individual Differences

1. ***Preferences/traits***

    i) Participants' observations of their own traits
    ii) Participants' awareness of own boundary preferences
    iii) Preferences (not specifically stated)

2. ***Individual differences influencing boundary management***

    i) Lifestyle differences
    ii) Individual style of working expressed whether working from home or elsewhere

3. ***Contradictions***

    i) Cognitive dissonance
    ii) Contradictions in relation to work/nonwork boundary category

D) Teleworking

1. ***Qualities of telework***

    i) Advantages
    ii) Disadvantages
    iii) Differences to office

2. ***Perceptions of telework***

    i) Other people's perceptions
    ii) Own perceptions

E) Interruptions

1. ***Direction of Interruptions***

    i) Work-nonwork
    ii) Nonwork-work
    iii) Work-work

2. ***Type of Interruptions***

    i) Technology related
    ii) Non-technology related
    iii) Urgent
    iv) Non-urgent

5.8.1 The Theme of Boundary Management

The theme of Boundary Management and its subthemes are presented in this section. Figure Six gives a visual representation of each of the subthemes within the overarching theme of Boundary Management. In this diagram, the thickest arrows represent the first order subthemes, the thinner arrows represent the subthemes stemming from the first order and the dotted arrows represent further subthemes that stem from the second. This diagram shows all of the subthemes that will be presented in this section.

Figure 6: A Visual Representation of the Subthemes of Boundary Management

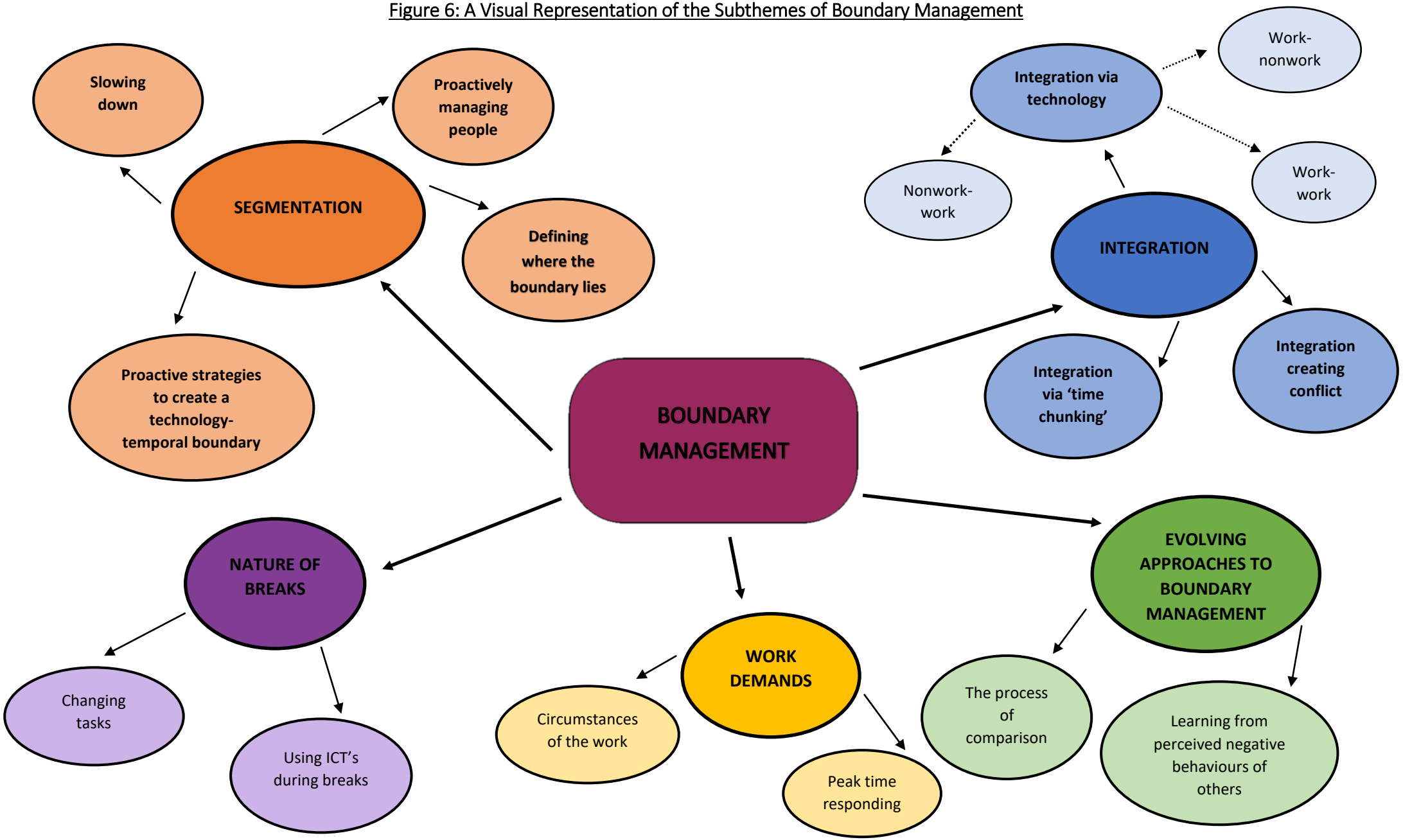


Table 26 below illustrates some of the boundary management behaviour characteristics exhibited within each of the five groups. It provides a summary of the common behaviours that were found amongst participants in this study within each group, before these are presented and discussed fully.

Table 26: The Boundary Management Characteristics of Each of the Five Groups Based on the Qualitative Data from the Sample of Participants

Group	Group Characteristics Based on the Qualitative Data of the Sample
Strong Integrators	• Strongly integrative behaviours combining work and non-work tasks regularly • Used ICT's frequently to blur the boundary between spheres, including often having merged email accounts blurring the boundary between spheres • Stronger work-nonwork interruptions through ICT use than nonwork-work interruptions • Some mention of work-life conflict due to work entering non-work time • Proactive strategies such as switching off and silencing used, but not often
Family Boundary Protectors	• Strives to protect the non-work sphere from interruptions from work • Some dedicated, separate non-work time for self very important and a need to switch off from work for psychological wellbeing • Participants very committed to work even though they needed some separation from it • Non-work interruptions largely due to preferences rather than caring responsibilities • Non-work interruptions experienced were predominantly from non-ICT sources, rather than ICT's • Proactive management of ICT's and people to reduce work-nonwork interruptions
Moderate Managers	• Moderate degree of interruptions between spheres • Sometimes switched between segmenting and integrating behaviours and can gravitate toward one or the other at different times • Used ICT's to segment and integrate, with a wide repertoire of different proactive strategies • Little mention of work-life conflict and strategies not perceived as problematic by the participants

Strong Segmentors	• Preferred to keep work and non-work separate • Used ICT's proactively to create segmentation such as switching off outside of work time and having separate accounts for work and non-work • Kept firm physical and temporal boundaries to create segmentation • General awareness of what they considered to be work or non-work activities • When strong work demands were present they took on a 'Moderate Manager' style flexibly and temporarily
Work Boundary Protectors	• Strived to protect the work sphere from interruptions from non-work • ICT's used to boundary cross from work into nonwork frequently, but used as a barrier to prevent interruptions into work, such as using software to prevent non-work interruptions • Very focussed on work realm and working long hours • Less well-defined idea of what constitutes work activity and where the boundary lies • Expressed some dissatisfaction with boundary management style and ICT use, but did not evidence proactively attempting to change it • Some work-life conflict experienced due to dislike (from significant others) of frequency of work-nonwork interruptions

5.8.1.1 Subtheme 1. Segmentation

The theme of segmentation emerged from the data in several ways. Firstly, proactive strategies were used to create a technology-temporal boundary and this will be shown in relation to all five of the boundary management groups. Secondly, slowing down responses to ICT's was one way that individuals could maintain a degree of segmentation, if they were able to psychologically distance themselves from the communications of the ICT's. Thirdly, segmentation emerged through proactively managing people to enable a segmented approach. Fourthly, a theme arose in relation to defining where the boundary lay, such that different individuals had varying ideas about which activities constituted work and this had implications for whether they saw their activities as segmented or not. This section largely feeds in to research question one, but also research question three because it also discusses ICT management (a reminder of the research questions can be found in Section 5.2 above).

5.8.1.1.1 Proactive Strategies to Create a Technology-Temporal Boundary

The subtheme of 'proactive strategies to create a technology-temporal boundary' is found within the data, wherein segmentation was achieved through actively choosing to set limits on when ICT's were used and manipulating their software use to enforce segmentation. A number of different proactive strategies were used by the participants to work toward achieving this segmentation, such as switching off, silencing and distancing from ICT's and these seemed to have the effect of creating time boundaries to distinguish when work was or was not engaged with. This subtheme is expressed differently within the allocated boundary management groups, showing that the groups may deal with this technology-temporal boundary differently. Each group will be discussed separately to look at some of the proactive strategies used within each group, but an overarching pattern was that the Strong Segmentor, Family Boundary Protector and Moderate Manager groups created more segmented temporal boundaries with their ICT's than the Work Boundary Protector and Strong Integrator group participants. An overall pattern can be seen over the whole theme and that is that it seems to take concerted effort to create segmentation in the way that ICT's are used and this does not just happen by chance, but by action.

5.8.1.1.1.1 Strong Segmentor

The data suggests that participants in the Strong Segmentor group in particular, made a concerted effort to create a temporal boundary by demarcating times that they would and would not use ICT's. A concerted effort seemed to be made by them to create a firm boundary and all four participants talk about engaging in behaviours that reduce work-nonwork interruptions, in the way that they use ICT's (Table 37, lines 30-36, 162-163, Appendix 6.6[14]) and increase segmentation (Table 37, lines 97-102, 177-178, 226-229, Appendix 6.6). Oona set a temporal boundary when she was available for work communications and aimed to be available during these times but not outside of them:

> *'I try and get myself into the thinking that it's Monday to Friday 9-5, and get other people into thinking that I'm available during those times'* (Oona, Strong Segmentor, 252-254[15]).

[14] Table 37 is frequently referred to in this section and can be found beginning on page 395.
[15] The numbers in brackets after the name and group, denote the line numbers where the quote can be found in the transcript.

Oliver, also refused to be switched on to work communications after work by reasoning that his job does not require a need to be continuously switched on:

> *'Once I've gone home from work, I've gone home from work. If I was an on-call heart surgeon that will be different, but I'm not'* (Oliver, Strong Segmentor, 321-323).

This technology-temporal boundary seems to be applied to reduce work interruptions into non-work time by maintaining some protected non-work time that is ICT free, as displayed in Kate's choice to avoid phones at dinner:

> *'Dinner is sacrosanct… I don't have my phone at dinner'* (Kate, Strong Segmentor, 246-249).

So, for the participants allocated to the Strong Segmentor group, their ICT use was controlled and they seemed to avoid using it for work outside of work time to prevent interruptions, choosing not to engage with this technology, means that it cannot create interruptions.

All four participants in this group mentioned having '*separate personal and work accounts'* (Kate, Strong Segmentor, 266), which might further help to solidify the temporal boundary. An additional protector from unwanted interruptions is by not using the full functionality of the smartphone's software, so that it cannot become interruptive:

> *'I don't sync my emails onto my phone'* (Kate, Strong Segmentor, 179).

Emails from either sphere cannot become an interruption when they cannot be accessed via the smartphone, so not fully utilising the smartphone might be a very effective way of shutting down potential interruptions before they start. Physically switching off devices at the end of work was also something that aided psychological detachment, because it was a sign that work was finished:

> *'I felt I'd done more than my all when I switched the computer off and switched the phone off, and there was no more, nothing else from work that would be that relevant'* (Rochelle, Strong Segmentor, 211-214).

So, in the Strong Segmentor group, all four participants showed evidence of setting temporal boundaries with their ICT'S and these were done physically and subsequently psychologically, by switching off and distancing from the smartphones and by manipulating its software to reduce the integration and interruptions that it could create if not proactively managed.

5.8.1.1.1.2 Work Boundary Protector

The creation of this technology-temporal boundary functioned differently in the Work Boundary Protector group as there was evidence that from the way that the participants talked that they protected their work time from non-work intrusion by engaging in more nonwork-work reducing behaviours, which are discussed by three out of four participants in this category (Table 37, lines 15-16, 148-152, 211, Appendix 6.6). This shows engagement in activity to reduce non-work interruptions and Gary goes to great lengths to protect his work boundary from invasions from nonwork:

> *'So, I have this product called 'Caffeine', that I have installed on my Mac and if you want some quiet time to do work, you set the times that you're allowed to go on the Internet and stuff like that…you can break it with your password, but it's an additional deterrent because when you click it, it won't load up'* (Gary, Work Boundary Protector, 273-286).

He used software to block out interruptions from non-work and to prevent himself from creating these interruptions, such as by using the internet for personal use during non-work time. However, it is interesting that this technology-temporal boundary was relaxed when dealing with the nonwork boundary and he did not actively control his technology use during non-work time:

> *'…On a Saturday afternoon I shouldn't be at work, I could be on my laptop or iPad sitting in front of the TV, not paying attention to the TV or the people around me, and I'll quickly just check my emails'* (Gary, Work Boundary Protector, 499-501).

This could also be further seen in behaviours such as Jill's taking a laptop on holiday to do work and by physically taking the laptop on holiday, it guaranteed that some of the time would be spent on work. It could also be seen through Maxwell having work related activities on his computer all the time, regardless of the time and John frequently using his smartphone in the evening to check on work communications.

Only two out of four participants talked about engaging in behaviours that would reduce interruptions from work into non-work (Table 37, lines 27-29, 316-320, Appendix 6.6). However, when these behaviours were mentioned, they tended to be a response to other people, such as choosing not to use the smartphone because it was annoying a partner. These behaviours that served to create distance between the individual and the technology did not seem to be part of a planned strategy, but rather as a response to feeling overwhelmed:

> *'So, if I decide I'm just not going to do any work, there have been a couple of times where I've just been so wiped out I've just slung it [smartphone] to one side and said: 'no I'm not doing it, I'm not doing it' and I've just put the phone in the other room and ignored it, but that's very rare for that to happen'* (Jill, Work Boundary Protector, 415-420).

There was little mention of segmenting strategies with smartphones for participants in this group (Table 37, lines 97-110, Appendix 6.6), and the participants did not specifically mention switching their phones off as a means to control interruptions. Although the lack of discussion of segmentation strategies does not mean that they did not use them for certain, it is interesting that they were so infrequently mentioned. Overall, it seems that the proactive strategies used in this group to create segmentation were to prevent interruptions into their work and there is less evidence that this occurred the other way. This reflects the boundary management preferences of this group and suggests that they might be using their ICT's in a way that reflects their boundary management preferences.

5.8.1.1.1.3 Strong Integrator

All four participants allocated to the Strong Integrator group mentioned engaging in behaviours that could increase work-nonwork interruptions through their ICT use (Table 37, lines 60-71, 169-171, Appendix 6.6) where technology does not seem to be off limits during non-work time. All four Strong Integrators mentioned that they had the same accounts for work and non-work, or had their communications fed into the same folders, meaning that they would be able to deal with both spheres at once. In this group, integration was enabled through the use of both software and hardware and with fewer temporal limits, opportunities for integration were created:

> *'So, I might be messing about on the laptop in the lounge at night doing some internet shopping or whatever, if something comes in and I'm not really doing anything, then I will respond to work things'* (Helena, Strong Integrator, 380-384).

This did not seem to bother Helena though and filled a gap when she was '*not really doing anything*', it gave her something to do. However, this might be a relevant factor in the ability to recover from work activity, as she was being pulled back into the work sphere and it did not give her the opportunity to fully engage in non-work activity.

Switching off and silencing was a way of reducing interruptions from the task at hand and not only to manage interruptions between spheres, but also to prevent interruptions while working. It cannot be said that individuals in this group do not engage in these behaviours as there is evidence that some did, as Serena talked about doing this sometimes so that she could focus if work required it:

> *'I tend to put my phone on silent whilst I'm working…I tend to try to avoid checking my mobile or emails…if possible'* (Serena, Strong Integrator, 202-205).

However, although switching off, silencing and distancing from ICT's are proactive strategies, only Serena mentioned it in this group, so these strategies were not talked about frequently by the participants in this group. It cannot be said for sure that the participants in this group were not 'proactive' in some ways, but they tended to not often put active temporal limitations on their ICT use. As, the participants in this group tend to prefer integration, they may be reflecting their preference by refraining from the more stringent controls that were more clearly seen in the Strong Segmentor participants' data.

5.8.1.1.1.4 Family Boundary Protector

All four participants in the Family Boundary Protector group talked about using strategies that reduced interruptions or behaviours that encouraged segmentation (Table 37, lines 103-105, 173-174, 230-237, Appendix 6.6). Participants in this group, similar to the Strong Segmentor group tended to prefer different work and personal accounts to keep a degree of segmentation between their work and personal lives. This was a very definite strategy that seemed to be used with the intention of creating segmentation:

> *'We have work and personal Dropbox accounts, work and personal email, calendars, contact lists, everything is separate….the reason I did that was because you reach a stage where you know it's a weekend and think: I'm just going to do a few personal things online, then you spot a work email that you haven't dealt with and then you're thinking about that and you just can't switch off, so having that real dividing line between them is for me very important'* (Jeremy, Family Boundary Protector, 202-214).

This strategy served to reduce the opportunities to be drawn into work related activities during non-work time which could happen readily if these accounts were joined. Another strategy to keep work and personal life separate was also encouraged by utilising different

alert sounds on the smartphone, so it can be decided whether or not to respond based on where the communications are coming from:

> *'Emails and things like that have a different noise for work and a different noise for personal'* (Jeremy , Family Boundary Protector, 458-460).

This may provide extra control over the communications and individuals using this can decide whether they want to answer a communication or not. Although the participants discussed managing their ICT's in a proactive way to reduce interruptions into their non-work, it also occurred the other way too. Karen describes taking control over the way that she was using ICT's by distancing herself from some of its software capabilities:

> *'I used to play a lot of computer games when I first opened my business and I wasn't very busy … but I just had to stop that and I'm glad I did, because I think that was just such a time waster'* (Karen, Family Boundary Protector, 491-498).

She recognised that this was something she did not want and goes further to say that she also applied this to her use of ICT's for communications as well as games because she did not:

> *'allow things like email, and technology, and goofing around to impact my quiet time that I need to actually produce my work'* (Karen, Family Boundary Protector, 200-202).

In her case it might be that allowing these interruptions into her work, could mean that she would end up working longer, which would likely then impact upon her non-work time.

Two out of four participants in the Family Boundary Protector group (Table 37, lines 39-46, Appendix 6.6) discuss engaging in behaviours that reduce work-nonwork interruptions with smartphones. Distancing from ICT's was a favourite and well-developed strategy for Jeremy who disliked work-based communications interrupting his personal time. He went to great lengths to distance himself by engaging in a 'digital detox' four times a year:

> *'…we go to a hotel where the phone signal is diabolical and I don't take a laptop, don't take a tablet, I do take my phone because there might be personal things I need to respond to, but not work and I leave my phone in my room…and I try to remember what it's like to not be harassed by my phone'* (Jeremy, Family Boundary Protector, 423-436).

This escape from technology was escape from work-based communications rather than avoiding the ICT's in general. He did not mind using it for personal reasons or taking the phone with him to communicate with friends. This behaviour protected his non-work boundary from work. Distancing from ICT's as a means to manage interruptions had some

limitations as a strategy, because it cut the individual off from both spheres, when they may have only wished to be cut off from one.

So the participants in this group talked about different strategies that they used to proactively manage their ICT's and they did so to reduce both work and non-work interruptions, rather than just one way or the other. In this sense, they differed from the Work Boundary Protector group, whose proactive behaviours tended to be more toward protecting work. Although protecting their non-work time seemed to be of paramount importance for the participants in this group and they actively managed their ICT's to achieve this, the ability to focus on work was also something valued and achieved through proactive behaviours. Even though the participants did talk about behaviours that were likely to increase non-work interruptions into work, these tended to be through non-technology sources rather than ICT's.

5.8.1.1.1.5 Moderate Manager

All four participants in the Moderate Manager group described behaviours that would encourage segmentation between spheres (Table 37, lines 107-110, 175-176, 225, Appendix 6.6) and three talked about behaviours that would likely reduce interruptions from work into non-work (Table 37, lines 11-14, Appendix 6.6). This involved using proactive strategies that resulted in segmentation such as switching off ICT's to reduce interruptions in both directions, whether between work-nonwork or nonwork-work and these could be used flexibly:

> *'I'll turn my phone off, or onto flight mode or something like that and not have my email on…otherwise it's the constant interruption of technology'* (Angela, 134-140) and *'If I'm on holiday…I might have my phone on flight mode quite a lot'* (Angela, Moderate Manager, 317-319).

Creating a physical distance from ICT's was also recognised as a strategy that could be used if required and when needed:

> *'I think it's a benefit as long as you manage to put the phone in the drawer maybe on a Friday evening at seven, this is family time and we actually interact with each other'* (Paula, Moderate Manager, 462-464).

Although Paula recognises that distancing from the smartphone is a strategy that can be used, she does not seem to do this all of the time herself, as she frequently talks about checking her smartphone and responding to emails during non-work time. So, even when strategies such as these are identified, they are not necessarily used all the time, but they can be used flexibly

at different times. The participants in this group also discussed engaging in behaviours that would likely result in an increase of work-nonwork interruptions (Table 37, lines 84-96, Appendix 6.6) and the allowance of a more permeable boundary between the spheres. Christina received work-based interruptions through emails on her smartphone during non-work time:

> *'If I'm sitting there and I just happened to see [an email] and it is something that I can answer right away, I can respond, but if not then I will leave it'* (Christina, Moderate Manager, 292-295).

There seems to be flexibility in whether or not she responds to these communications, so although she may keep her smartphone switched on and actively engaged with it outside of work time for work purposes, she still exercised choice over how she responded to these interruptions.

The participants within the Moderate Manager group seemed to engage in a variety of proactive strategies to manage their boundaries and were aware of a range of different strategies that were open for them to use flexibly. Some of these strategies may have contributed to segmentation while others integration but they used a wide variety and this links in to their preferences, showing that they can gravitate between segmentation and integration flexibly.

Now that the proactive strategies to create a technology-temporal boundary have been shown within the five boundary management groups, the next three sections will show some of the strategies used to create segmentation, the first being 'slowing down'.

5.8.1.1.2 Slowing Down

One strategy that is used to create segmentation is that of creating a psychological distance from the smartphone by slowing down responses to it. There was no strong pattern across the five groups in relation to this strategy, but there may be a pattern related to the age of the participants, bearing in mind that this is a very small sample. Younger participants that were in their 20's and 30's talked more about feeling the need to respond quickly to communications (Jools, Georgina, Helena, Serena, Evie and Gary), while some of the participants who were in their 40's and 50's (Kate, Rochelle, Oona, Angela, Christina and Karl), talked about finding it relatively easy to wait to respond. Allowing communications to come

through without responding immediately, was a strategy to reduce interruptions and although the communications were responded to eventually, slowing down the response or ignoring it for a while, allowed the individual to keep control. These potential interruptions could then be dealt with at a more convenient time:

> *'The email inbox gets fuller while I'm not looking at it, the answer phone may record messages from companies and I'm not answering'* (Karl, Moderate Manager, 574-576).

However, this strategy worked better if the psychological distance could be kept and the individual was able to forget about the communication until it was convenient. Slowing down responses was more difficult for Serena, because unlike Karl she seemed to find it more difficult to psychologically detach from the need to answer:

> *'I feel under pressure to answer it as quickly as possible, but I know if it was from my supervisor that he wouldn't expect me to. So, I know that I'm not expected to, but I feel the need to'* (Serena, Strong Integrator, 298-301).

Although she recognised that slowing down was a possible strategy that could be used, it was difficult to do because of the perceived need to produce a fast response and psychologically switching off from the perceived demand could be difficult.

Waiting until a better time to communicate and reply by laptop rather than smartphone was another way to prevent interruptions via smartphone from becoming a problem. Using the laptop rather than a smartphone facilitated putting more thought and consideration into the reply:

> *'So, I am okay with being a slow thinker and a slow responder, as long as I add value to the conversation. I'm quite okay, but maybe that is quite old fashioned? I don't know, but I don't like those quick replies'* (Karen, Family Boundary Protector, 563-566).

Slowing down responses to technology was one way to reduce interruptions, it involved psychologically distancing from the technology rather than physically distancing. The individual knew that the communications were there, but psychologically switched off from it rather than physically switching off the technology. It seems that the ability to psychologically switch off was needed for this strategy to be successful.

5.8.1.1.3 Proactively Managing People

The participants across the categories engaged in proactively managing other people to protect the work/nonwork boundary, but this could be seen the most significantly in the Family Boundary Protector and Strong Segmentor group participants. Three out of four in the Family Boundary Protector category and all four in the Strong Segmentor group mention taking action to manage people in either sphere from interrupting their work or non-work. This showed that proactivity served to manage the boundary in both directions. One participant each out of the other three groups also mentioned this, so it was not as prevalent in these groups. Karen managed people through being very disciplined and '*training*' people not to interrupt her work or non-work time:

> *'There are people who say neighbours take advantage of them and have their packages delivered to them, but maybe because I'm so disciplined, people don't really do that, they don't take much advantage of me being home'* (Karen, Family Boundary Protector, 305-309).

This was similar for Jeremy who received visits from his friends sometimes while working and he took definite action to manage and reduce these interruptions from people, while at the same time being non-confrontational:

> *'…in my mind I have set a cut-off point of perhaps an hour, there might be various things where I engineer an email to arrive, or if my phone makes a noise I might pretend that it's very important'* (Jeremy, Family Boundary Protector, 248-252).

In this way he was able to cut short the visits that were interrupting his work. Although both being in the Family Boundary Protector group their survey scores suggest that they show a preference for avoiding interruptions into their non-work, they appeared to still take a proactive stance to protect their work from interruptions as well. Similarly, participants classified as Strong Segmentors also preferred to reduce interruptions in both directions, by proactively managing people:

> *'I see it as if I'm at work and I'm not available to my family, they know that they can't just pop round when I'm working from home, so it's as if I'm not there really'* (Rochelle, Strong Segmentor, 115-119).

Rochelle had discussed with friends and family in advance not to disturb her while she was working and this proactive management might have reduced the number of non-work

interruptions she experienced. Similarly, Kate prevented work interruptions during non-work:

> *'When I'm not working I use 'out of office' those kind of things. I manage client expectations'* (Kate, Strong Segmentor, 235-237).

In this case she used the functions of her ICT's to communicate to others that she was not available and this served to reduce the number of interruptions she experienced in non-work time.

Therefore, participants from all boundary management categories showed some evidence of proactively managing other people to manage their work/nonwork boundary and reduce interruptions between spheres. This management tended to be towards creating segmentation, so perhaps then it is not surprising that this was more commonly discussed in the participants in the Strong Segmentor and Family Boundary Protector groups.

5.8.1.1.4 Defining Where the Boundary Lies

The subtheme of 'Defining where the boundary lies', can be found in the data and this occurs when the participants talked about checking or receiving communications outside of working times, but they did not recognise this as work-related behaviour. This was mentioned by a few individuals within each group, but not everybody in each group. There was no strong pattern between groups that emerged in relation to this theme, except to say that those in the Strong Segmentor group tended to acknowledge that it was not something that they did very often. However, this seems to be more unconscious for some, for example, John did not perceive monitoring emails for work-related communications as 'work':

> *'…there won't be any more work, but I will monitor emails through the evening'* (John, Work Boundary Protector, 104-105).

Paula explains that she would avoid sitting down to do work, but still engaged in work-related activities, especially communications through her smartphone:

> *'I will never sit down at my laptop at this desk at the weekend to work, it would only be an email coming in on the iPhone, someone sending a question and then getting back to them there and then, that only takes a minute to do'* (Paula, Moderate Manager, 327-331).

Although she stated that she was not doing a significant amount of work at the weekend, she allowed short and simple work tasks to permeate the boundary and seemed unconcerned about the interruptions that these created.

This was also present in the participants from the Family Boundary Protector group, as Evie used her smartphone to check emails and plan the week ahead during non-work time. This might not be expected from people in this group, who make an effort to protect their non-work time from invasions from work:

> *'I suppose when I am not working, the only thing that I would do is have my email and my diary on my phone…so at night even when I'm watching telly in non-work time, I would have a look at my diary and think: 'Oh I've got that scheduled in to my diary'* (Evie, Family Boundary Protector, 472-491).

It looked as though Evie allowed a controlled number of incursions to facilitate a proactive approach for the week ahead, that may increase her efficiency and limit further intrusions, perhaps as a trade-off. This was also found from the participants from the Strong Segmentor category. Rochelle and Oona claimed to switch off their ICT's to create segmentation and to avoid work during non-work, but:

> '*Sometimes I might go and look at emails late at night if I'm waiting for something important, but not very often'* (Rochelle, Strong Segmentor, 266-268).

Although the non-work boundary was breached via ICT use, such as checking emails, these participants recognised more significantly that this behaviour constituted a work-related, boundary breach. So, they had more of a sense of what they categorised as work and non-work, even though these breaches did not happen very often*:*

> *'Not that often, occasionally it will just be an email when I'm doing something'* (Oona, Strong Segmentor, 282).

These quotes indicate that these breaches were only allowed at times and for short and simple tasks, possibly because of their preference for segmentation, but they still had a degree of work-nonwork interruptions that took place through smartphone use. The smartphone enabled work-nonwork interruptions to take place through ease of access to checking emails in non-work time that would not be possible without one. However, it is also possible that these devices limit the amount that can be done on certain tasks, for example,

they can be used to quickly respond to an email, but it would be difficult to start work on a long document on a smartphone.

Overall, checking work communications outside of work time was found in a few participants in each group, including people in groups where it might not be expected and where they also claimed to specifically avoid it, such as the Strong Segmentors. The use of smartphones in this way during non-work time for work purposes, was more commonly discussed than being used for non-work purposes during work time. The participants' describing this checking behaviour as 'only' and the frequency with which it occurred, might show that this behaviour was normalised to some degree. Handling work communications during non-work may have been expected to different degrees by different people and not perceived as significant interruptions. Although it was still avoided by some, it was unrecognised by others as a boundary breach and it might be that they did not see it as an interruption.

5.8.1.1.5 Summary

Data from this theme contributed to research question one, in that it showed the differences between participants in the boundary management groups and their work practices, but these differences were also nuanced. Although, Strong Segmentors preferred segmentation they also engaged in activities that might have increased work-nonwork interruptions, although these seemed to be done sparingly. A range of proactive strategies were used to manage the boundary, including; switching off and distancing from ICT's, slowing down responses to ICT's and proactively managing people. Although there was evidence that these strategies were engaged in with participants in all five of the groups, these proactive strategies overall were done more by participants in the Family Boundary Protector, Strong Segmentor and Moderate Manager groups. It seemed that these were used less in the Strong Integrator group participants and the proactive strategies used by the Work Boundary Protector group participants were more about creating segmentation to protect their work time, so this was more one-sided. The participants in the Family Boundary Protector group also showed that they used strategies to protect their work time as well as non-work, showing that it was of importance to them and that protecting work may have also given them a more well defined cut-off point in which they could then enjoy non-work. This also contributed to research question three, which asked how technology use influenced boundary management.

In this data, there is evidence that boundary management influenced ICT use, because the way that they were used often matched the boundary management preference of the individual user.

5.8.1.2 Subtheme 2. Integration

The theme of integration of work and nonwork emerged from the data. Specifically, the way that individuals used ICT's was one way that integration occurred such as by using it for work purposes outside of working time. Integration also occurred through 'time chunking' which took place through participants engaging in work and nonwork activities in 'chunks' throughout the day and alternating between blocks of work and non-work orientated time, which had the effect of creating integration over the day. Some of this 'time chunking' might be related to the teleworking environment which allows for swapping between tasks in a way that might be difficult in an office. Thirdly integration, specifically that created by ICT use was a source of work-life conflict for some participants, particularly some in the Work Boundary Protector and Strong Integrator groups which will be discussed. This section feeds in to research questions one and three.

5.8.1.2.1 Integration via Technology

The way that ICT's were used, particularly smartphones were found to be significantly involved in whether or not the boundary between work and non-work was blurred or segmented. Smartphones were talked about most frequently as a source of work-nonwork interruption in the data (see Table 43, Appendix 6.12, page 449). The Strong Integrator, Work Boundary Protector and Moderate Manager group participants talked marginally more about their behaviours increasing work-nonwork interruptions through this source, than the Strong Segmentors and Family Boundary Protectors (see Table 39, Appendix 6.8, p444). The next three sections will show that interruptions that were facilitated through smartphone use occurred in all directions, from work-nonwork, nonwork-work and also created work interruptions from work-based sources too.

5.8.1.2.1.1 Nonwork-Work

Although nonwork-work interruptions were discussed in this study by the participants, they were not talked about quite so frequently in regard to ICT's, or put another way, smartphones were not so much a source of interruption from non-work into work in this data (see Table 38, Appendix 6.7, page 443). There was not much of a pattern that emerged in relation to the different boundary groups for non-work interruptions created via the use of ICT's, save that the Family Boundary Protector group spoke more of this than the other groups. However, even participants in the Work Boundary Protector group admitted to using their ICT's in a way that created nonwork-work interruptions, even though their survey scores might suggest they would prefer to keep this to a minimum:

> *'Ok, so maybe a little bit, so maybe some online shopping or whatever yes, so during [work] time'* (John, 120-122, Work Boundary Protector).

Nevertheless, this type of behaviour was not reported frequently in this group (only by two people) and it seems that even when they did do this, these interruptions were located to convenient times, rather than something regular and habitual:

> *'I do get texts from friends and I usually do answer them. I could be seeing clients or speaking to clients, but in between when in the office or about doing all the bits of business stuff, I'll answer them straightaway'* (Jill, 272-276, Work Boundary Protector).

This suggests that they may have been making the most of their available time rather than creating deliberate interruptions and it was only on reflection that they noticed they allowed these interruptions on occasion.

So, overall, ICT's especially smartphones were not talked about very often as a source of interruptions from nonwork-work in any of the groups and Table 43 (Appendix 6.12, page 449) shows that ICT's were less of a source of nonwork-work interruptions than non-technology based sources, based on the discussion within the interviews. This might suggest that the participants in this study are able to limit their smartphone use for non-work purposes easily, or that it does not create a significant distraction for them while they are at work regardless of their boundary management group.

5.8.1.2.1.2 Work-Nonwork

On the other hand, ICT's were reported to be a source of work-nonwork interruptions by the way that they were used and some participants in each of the five groups reported engaging in behaviours that were likely to increase work-nonwork interruptions, by the way that they used their ICT's. However, this was more associated with the Strong Integrator, Moderate Manager and Work Boundary Protector group participants, than the Strong Segmentor and Family Boundary Protector groups (see Table 39, Appendix 6.8 and Table 40, Appendix 6.9, pages 444-446). However using ICT's in a way that were likely to increase work-nonwork interruptions were talked about far more frequently, than their equivalent nonwork-work interruption behaviours (see Table 43, Appendix 6.12. page 449).

Laptops can be used in a way that create work-nonwork interruptions, as Jools acknowledges that he allowed these interruptions and that they have become a contentious issue for him:

> *'It's quite a bone of contention actually, I think I'm not good enough at not getting sucked back into work during my personal time; so, it might be having my laptop open when I've got guests around'* (Jools, 487-490, Strong Integrator).

Interestingly, the participants talked less frequently about interruptions occurring through the medium of laptops. Use of laptops outside of work for work purposes is mentioned more commonly by participants in the integrative style groups; Strong Integrator (three out of four participants) and Work Boundary Protectors (three out of four participants). Whether, using laptops for work during non-work is perceived as problematic, depends on individual perceptions, but the behaviours appear to be more commonly reported by participants in these groups, suggesting that they may have been using laptops more heavily.

The process of the interview seemed to facilitate reflection by the participants on their ICT use and how it was effecting their lives, particularly that of interruptions that they experienced into their non-work. Gary contemplated that although technology may have what appears to be a powerful effect on integrating work and non-work, he felt that he had allowed it to take over and gaining control over it was something within his grasp:

> *'So, these devices are intrusive…we have become so dependent on it that it has become ingrained in our lives and it helps in one way, but it constrains you in others… if you talk 30 years ago, would you be at home, sitting in the living room with friends and family working on a laptop? You wouldn't, you'd probably be in an office, so it*

> *definitely infringes and I think it has probably taken over, but that's not the technology that is me allowing the technology to do that'* (Gary, 510-518, Work Boundary Protector).

Another way that integration occurs is through merging emails by having the same inbox for work and non-work. This made it more difficult to segment as participants are pulled into one sphere or the other through reviewing email communications. Jools talks about how this occurs in his non-work time and is also reflective like Gary in thinking about how his current strategy is effecting his work-nonwork boundary:

> *'It's more me actually going on to emails and refreshing and there could be an argument to say that I should do more to separate personal emails and work emails…I'm looking at personal emails and being distracted by work emails, whereas if they were separate, that might not happen. So, I haven't really thought about it that way, but that could be a thing'* (Jools, 527-539, Strong Integrator).

More participants in the Strong Integrator category indicated that they had the same email address and/or social media accounts, or filtered all of their emails into a joint inbox for work and personal (three out of four) than was indicated by the other groups. The process of the interview enabled the participants to reflect on their boundary management behaviours and how it integrated work into their non-work time.

5.8.1.2.1.3 Work-Work

Along with work-nonwork and nonwork-work interruptions, the way that ICT's were used also created work-work interruptions, meaning that while individuals were working on particular tasks and activities, they also experienced distractions from ICT's from work-based sources related to other work activities. Examples of this are visual and sound based email pop ups and frequently checking for work-based emails and messages. While using a laptop during work, email checking can be a distraction from the laptop-based work task that was meant to be the focal work activity itself:

> *'I could be better about not checking my email, that would help me concentrate more on work, but I'm not very good at that'* (Georgina, 135-137, Strong Integrator).

Text messages on smartphones have a similar influence, making for distractions if text alerts are switched on:

> *'So, like if I get text messages throughout the day I check them'* (Robin, 198-199, Family Boundary Protector).

Potentially, this could serve to lengthen the working day, as more distractions may lead to work taking longer to complete. However, an antidote to this, used by Kate and Karen is to close down emails and texts while working and only check three times a day. Jools also discussed his intention to start using this strategy, which could decrease distractions and slows down responses to communications, as discussed above in the theme of 'Segmenting'. So, rather than there being a specific pattern across all five groups in relation to work-work interruptions, there seemed to be more of a sense of awareness of the interruptions and some participants chose to explore new methods to try to reduce these.

Within this data, it seems that ICT's were used in a way that integrated the boundary specifically that they seemed to increase work-nonwork boundary blurring but that the influence was not equal the other way from nonwork-work. There was evidence from the interview data that as the participants talked about their experiences of boundary management, they reflected on it and thought through whether what they were doing was working for them. Some also noticed that they may have had more interruptions than they first thought after reflecting for a while on their behaviours.

5.8.1.2.2 Integration via Time Chunking

Emerging from the interview data was the theme of 'Time Chunking', which showed that over the course of the working day, integration occurred through a process of switching between work and non-work tasks in chunks of time throughout the day and often into the evening. Engagement in both work and nonwork activities during what would be primarily work time, presents as a form of continuous integration during working hours. This strategy was talked about by participants across the five groups with all four in the Strong Integrator and Moderate Manager group, three out of four in the Family Boundary Protector but none in the Strong Segmentor and one in the Work Boundary Protector groups. As people in these two latter groups tend to prefer separating non-work activities from their work, it might be that they preferred not to use this integrating strategy, but might prefer a longer and clearer block of time with which to focus on work activity. As it is an integrating strategy, it may be ideal for some people who like to reap the benefits of both integration and focussed activity.

An example of this chunking of time is from Robin, who integrated his work and non-work tasks throughout the day, giving a great deal of flexibility:

> *'I'm getting my car serviced today, so it's part of my work day, but I don't feel like the people in my office care necessarily. So, it seems like I do laundry during the day…but I also feel that there's a boundary there. I don't count the time that I'm standing at the stove cooking getting a meal prepared as against the job, but I may end up working a little later because of it'* (Robin, Family Boundary Protector, 495-504).

This time chunking strategy is a very active strategy that requires thought and planning, rather than something that happens passively. However, it seems to have the effect of lengthening the work day to make up for not focussing exclusively on work during the day. So, rather than finishing at a set time, the end of the work day was moved to accommodate the integration that had taken place throughout the day. Time chunking can also extend the working day into a whole day, as work and nonwork tasks could be taking place at any time throughout the day and into the evening:

> *'So, I may still do an extended working day, but it will be fragmented into different sections, so I can get up early in the morning, go missing for the whole morning while I deal with the animals, come back, do a bit in the afternoon, make a cooked dinner, go out bell ringing, come back and do some more'* (Karl, Moderate Manager, 161-166).

Time chunking and switching between work and non-work tasks could perhaps serve as a form of a break, as changing tasks and refocussing on something else for a while seems to alleviate boredom:

> *'I mix it in, so if I'm not speaking to someone, I'll think: 'Oh I'll just make myself a cup of tea, I'll go and pay my credit card bill' or if I'm writing a report when I'm getting bored I'll think: 'Oh, I'll just go and do that' and then I'll come back to it, or I wonder how much money I've got left in the bank, I'll just go and have a look'* (Jill, Work Boundary Protector, 256-262).

This strategy seems to be about making the most of the available time and not wasting the small chunks of time that are available. It may also be the case that changing to do something else when feeling bored may save time, because either some necessary task is engaged in, or time is spent recovering and preparing to restart work, rather than spending time feeling bored and resisting the task at hand. This strategy seems to increase efficiency and effectiveness by the participants that use it, because more tasks can be completed and the time utilised efficiently. However, it does seem to lengthen the day, so may suit people who

do not mind a longer working day. This could be why it was not mentioned by participants in the Strong Segmentor group who likely preferred to have a more definite cut-off point where they could then switch into non-work.

This strategy of 'chunking' involved focussing on work or non-work, either of which are focussed upon within that chunk of time, enabling enhanced focus on one task at a time, whether it be for work or non-work. Although the participants that engaged in this strategy allowed some non-work into their work time, it does not mean that they did not prioritise work:

> *'I'd rather focus solely on work. I'd rather compartmentalise, so if I've been told I need to go to the chemists and I need to make the bed and do the dinner, I'll compartmentalise. So, I'll say; 'I am going to work solidly on this from 9.00 to 12.00, this University stuff 12.00 till 3.00 and then I'll do my three things I have to do around the house' and put them into boxes and normally if it is housework or personal type stuff I'll try and do that at the end of the day, that's probably the last thing I'll do, but yes I would go as much as I can to avoid things interrupting work'* (Jools, Strong Integrator, 238-251).

It seems that this strategy allowed deep focus on the task being conducted, because there is a lack of simultaneous focus on both spheres, but intense focus on one or the other sporadically throughout the day. Evie also talks about 'chunking' her time:

> *'I am doing this more increasingly now; 'chunk' and I put it in my Outlook diary calendar'* (Evie, Family Boundary Protector, 481)

So this 'chunking' is also factored in to her diary as an ongoing means with which to organise herself. However, work still takes priority even within this:

> *'But if I could squeeze in anything, like putting the dishwasher on, or putting a wash on, then I would do that, but then it would only be if I didn't have too much on that I was able to squeeze that in. I didn't allow it to influence my work'* (Evie, Family Boundary Protector, 188-192).

Over the course of a typical working day, time chunking reduced strict segmentation where only work was done during what may be expected to be work time. However, for participants that did talk about it, it seemed to be a strategy to enhance focus on whatever the task was and to reduce boredom and facilitate recovery from the task being completed. When the task was returned to later, the level of focus on the task may have been greater. This shows

that segmentation does not necessarily guarantee focus, but focus can be achieved through this type of 'time chunking' strategy. In the participants who discussed alternating work and non-work throughout the day, they did not seem less conscientious or work focussed, but rather used it to manage their time efficiently, albeit sometimes resulting in a longer working day overall.

5.8.1.2.3 Integration Creating Work-Nonwork Conflict

Integration of the boundary was reported to contribute to work-life conflict for some participants, although not all report this. Three out of four participants in the Strong Integrator group and all four in the Work Boundary Protector group mention in their interviews that they experienced some degree of work-life conflict. Few of the participants in the other three groups talked about experiencing work-life conflict (only one out of four in the Strong Segmentor group and none in the others). This does not guarantee that they did not experience it, but it is interesting that there is such a difference between the groups who did and did not report it. There is evidence in the data that conflict arose due to integration through using ICT's and that this conflict could be with other people and experienced internally.

Conflict with others occurred through using smartphones out of hours for work purposes, even though it did not necessarily bother the user. It was a source of conflict with significant others, because it enabled work to seep through into nonwork, acting as a distraction from being in the moment:

> *'The main problem is the bloody smartphone and the email messages coming through. If you asked my wife about this she'd say there was a massive problem. She hates it, and to be honest I do have to do better probably, because, it's like the emails, these things will all wait, they don't need me to be there, so although all of the stuff I've talked to you about are efficiency toward work, I really try to be efficient towards my personal life and not letting these things creep in'* (Jools, Strong Integrator, 491-496).

Failing to switch off or silence a smartphone can allow disruptions, such as receiving email alerts, but Jools later admitted (Jools, Transcript, 527-539) that he had a habit of refreshing emails and checking for them too, thereby initiating the interruptions himself. He later went on to say:

> *'It doesn't `bother me directly, but it affects me in that it affects other people, it will affect my friends in the pub if I'm looking at work emails, it's not really good practice…but indirectly it's got negative impacts'* (Jools, Strong Integrator, 626-632).

Although it created conflict between himself and his wife and himself and his friends, there also appeared to be some conflict in how he interpreted it. Although it was not problematic for him, he recognised that indirectly it could have negative consequences for others, that in turn becomes a problem for him.

The participants in the Strong Integrator category, only mentioned conflict entering into their non-work rather than into their work. This did not necessarily mean that they did not experience this, but they did not speak about it in their interviews. According to their scores in the survey, participants in the Strong Integrator group tend to mix both spheres more or less equally, but it was not found in the data that conflict was spread equally across spheres. There is only one participant in the whole study (Robin, Family Boundary Protector) who mentioned minor conflict at work with his manager, due to engaging in non-work activities during work time and these were not ICT related. So, across the study participants, it seemed that ICT related work-nonwork conflict was more of an issue than nonwork-work conflict.

A source of conflict for Gary was his focus on his work, to the detriment of his non-work life and this seems to result in some resentment from his wife:

> *'I've been a very neglectful husband I've been told'* (115) … *'I'm normally just very apologetic to my wife if I'm brutally honest and I do genuinely feel bad, but nothing really changes… the reality is even if they ask me to do something, the [work] stuff gets done first'* (Gary, Work Boundary Protector, 173-177).

Gary talks about being very focussed on developing his career which led to an imbalance in the time he spent on each sphere and ultimately conflict. Technology also played a role in the creation of this conflict as he talked about using his laptop to work, while he felt he should be spending time with his family (Gary, Transcript, 499-518). The technology itself, such as the laptop, became a resource for him to access work outside of working hours and even though he recognised the conflict that this behaviour caused, it did not seem to change. Jill talked about experiencing some conflict with her husband for similar reasons:

> *'It is very challenging; my husband is fed up because he thinks I don't do anything other than work and it's very difficult to pull me away and I am quite tired to be honest. I get quite tired some days'* (Jill, Work Boundary Protector, 468-471).

Jill also talks about taking her laptop on holiday with her (Jill, Transcript, 400-415) and very rarely being detached from her Smartphone (Jill, Transcript, 220-221) meaning that she was mostly connected to work, via her ICT's.

Smartphone checking in non-work time created complaints from Kate's children who verbalised their dislike of this more as they get older (Kate, Transcript, 255-259):

> *'I would say especially now that I have my own business that work takes precedence in that if something comes in from work, I'm much more likely to check my phone. In fact it's one of the things my family complain about; that I'm much more likely to check my phone outside of work than I am inside of work'* (Kate, 201-206, Strong Segmentor).

Running her own business increased the pressure to engage with her phone more than when she was previously employed. Even though she talked about having non-work time that was completely ICT free (Kate, Transcript, 239-240) to prevent interruptions and her survey scores indicate a strong preference for segmentation, this shows that the boundary is not completely impenetrable, even for someone with a very strong segmentation preference.

5.8.1.2.4 Summary

Overall, the contents of this theme showed that reported behaviours related to ICT's especially smartphones, were more related to integrating through work-nonwork interruptions than nonwork-work interruptions (Table 38, Appendix 6.7, page 442). This suggests that within this data, it might be the case that ICT use created some blurring, but that this was not equal in both directions. This section contributes to research questions one and three, by showing that for the participants in this study, ICT use influenced the boundary much more toward increasing work-nonwork interruptions in all five groups than the other way. In addition the degree of preference for integration might influence people's choices to integrate or segment their electronic communications and this in turn may influence the number of interruptions that are experienced. So this is one way that differences in preference might influence practice. The use of ICT's during non-work time for work purposes was a source of conflict for some participants in the study, predominantly those in the Work-Boundary Protector and Strong Integrator groups, but not so much reported in the others. The conflict that did arise though, seemed to also be related to the responses of the significant others in the lives of the individuals too, so their responses were key to whether

conflict arose. Although the participants were aware of the conflict, this did not necessarily lead to taking any kind of action to change the behaviour. These findings contribute to research question three by showing that one influence that ICT use can have on the boundary is to be a source of conflict between spheres, but that this is not something experienced by everyone equally across the different groups. It was more a source of conflict for individuals with a high degree of work-based interruptions that were resented by family members. Time chunking was a technique that created integration by switching between work and non-work tasks alternating throughout the day. This contributed to research question one, because it shows that individuals in the more integrative groups engaged in this strategy more than the Strong Segmentors and Work Boundary Protectors. This technique is a very active form of integration, but it also seems to be used to increase focus and concentration on the task at hand and to use time efficiently. It appears that segmentation is not the only way of creating conditions for focus, because time chunking allows focus to be achieved by dedicating time to one thing at a time, in shorter bursts. However, this technique can have the effect of lengthening the work day, but this is not necessarily perceived as problematic by the participants who engaged in it, but perhaps might by the Strong Segmentor participants that did not. This shows that individuals in different groups may use different boundary management practices to achieve the same goal of focus.

5.8.1.3 Subtheme 3. Work Demands

The theme of work demands emerged and these 'demands' are factors from an external source (that being work) that the participants respond to by changing their typical boundary management strategies. The responses to these work demands show that boundary management is not something static, but something that can be flexible and adapted according to the needs of the job at a given time. The participants talk about responding to these work demands from the following sources: 1) the circumstances (or job characteristics) of the work and 2) responding at peak work times. The participants responded to work demands and these responses influenced the boundary and interruptions experienced by the participants. The pattern across the five groups varied across the three subthemes and will be discussed individually in each section.

5.8.1.3.1 Circumstances of the Work

The circumstances of the work or characteristics of the jobs that individuals had, such as the level of responsibility, pace of work and organisational culture within the workplace, influenced the ways that individuals managed their boundaries. However, there was no identifiable pattern across the different groups in relation to how these characteristics influenced the participants in these groups differently. As work characteristics change, boundary management behaviours may be adapted to accommodate the differences in the demands of the job. Rochelle talked about the difference between her current and previous job and how these differences changed how she behaved. She reported that her current role was less urgent than her previous, so she felt less need to check work related emails outside of work time:

> *'When I first started to do it, I mean my first job as a senior manager, I can remember looking at emails because I didn't want to get caught out when I arrived in the office, you just needed to be on the hoof really. So, I certainly did then, but not in my role [now], there was really no need, things could wait* (Rochelle, Strong Segmentor, 291-296).

As the job changed, so did her responses to the demands of the job. This can also be seen in the data the other way round, as Paula talked about the opposite. Her previous job created fewer opportunities for work-nonwork interruptions via ICT's than her current job, which involved working with people in different time zones, opening opportunities to connect with them at different times:

> *'I think that has to do with the time zone difference, so a lot of emails from the States come in let's say between 4 PM my time and midnight and if when I'm cooking or something I'll stand there and still check my phone for what is coming in'* (Paula, Moderate Manager, 288-292).

The culture and nature of the workplace environment is relevant to how the boundary is managed as well, as she further discussed how working for an American company felt more pressured and she felt a stronger need to respond outside of working times than previously:

> *'I work a lot more with people in the States now and they tend to send emails at the weekend and stuff like that, so you tend to get a lot, whereas in my previous role I worked a lot more with people in Europe and people in Europe kind of respect the weekend a lot more and then there is nothing there'* (Paula, Moderate Manager, 315-320).

Having a very fast paced job with a very quick turnaround can strongly influence checking behaviours. Georgina checked her communications frequently to keep a track on the work coming in and to respond quickly to employers:

> *'I know I have 48 hours from when it [work] came in and I do always have the option to say "no" if it's something I don't think I can do. So, that's another reason; it's better for me to know right away because I can always let them know right away if it doesn't fit into everything else I have'* (Georgina, Strong Integrator, 334-340).

This need to keep technology close by to receive work was also found in other participants with similar jobs where work was received through communication via technology:

> *'I tend to keep the phone with me all the time, because of course, some of my work comes in by phone, so I want to respond rather quickly'* (Oona, Strong Segmentor, 219-221).

So the character of the work, can be influential in the boundary management choices of individuals and the more pressure that individuals felt through the characteristics of their jobs, it seems the more likely they were to allow more boundary permeability.

5.8.1.3.2 Peak Time Responding

Some of the participants in this study allowed extra work-nonwork interruptions than they normally would, at times when there were peak workloads, deadlines, sudden and unexpected work or new opportunities on the horizon, that if dealt with quickly could be beneficial in the long term. In total, 12 out of 20 participants mentioned responding to these by allowing additional interruptions and with three to four participants in the Family Boundary Protector, Strong Segmentor and Moderate Manager groups and only one each in the Strong Integrator and Work Boundary Protector groups. The small sample size needs to be considered when addressing these group differences, but a logical explanation for these differences might be that as this theme deals with allowing additional interruptions on occasion, it is less applicable to the latter two groups who may allow additional interruptions regularly.

An example of peak time responding is from Robin, who focussed more effort onto work during deadlines, led by the workload and need for completion:

> *'Come the end of the year we have a lot of deadlines, that we're like December 31 at that time we're trying to get these things pushed out… but other than that that's our big deadline for the for the Year and then it's kind of back to live and let live'* (Robin, Family Boundary Protector, 343-347).

Along with doing more work during heavier times, the participants found themselves using ICT's more, such as smartphones and email checking more frequently in response to workload. Christina checked her emails more at deadlines so that she could be ready to respond if necessary, even if the checking did not result in doing anything other than checking:

> *'I will get requests on the weekends but I will know beforehand, because I know when the deadlines are, so I will only be checking my email just in case they need anything'* (Christina, Moderate Manager, 332-334).

Similarly, Paula was more alert to her work during 'sales kick-off' and checked emails more frequently during those times than she typically did, which influenced her boundary management behaviour, that of increasing interruptions through additional checking due to peak working times:

> *'…at the moment we're preparing for sales kick-off at the end of January, which my team is organising, so there is a lot happening at the moment so I know that this is a crucial time where response times are important. So, I will probably be checking email over the next coming days, but if nothing like that was happening and I wasn't involved in anything super urgent, I would switch off completely'* (Paula, Moderate Manager, 352-357).

A similar reason for changes to usual boundary management practices is unexpected and sudden peaks in work demands and Kate described how these led to her behaviour changing to increased checking:

> *'When I was working on pandemic planning, I was checking, covering push feeds of emails coming in, because of the nature of the project, because I was involved in pandemic planning … at the time we weren't sure how the pandemic flu outbreak was going to go, so I would say that I was constantly checking then'* (Kate, Strong Segmentor, 284-306).

There are times when some of the participants responded to workload by allowing interruptions into their non-work time as a calculated decision because it might lead to more work or some benefit later. For example, Oliver (Strong Segmentor) allowed the boundary to be crossed more readily and continued working in the evening if the task he was doing could create future work opportunities:

> *'I suppose when I'm trying to win work quite often, so yesterday evening I was looking at a contract that someone had sent through to me which wasn't unprompted because I had asked for it, but the only time I had to do it was in the evening'* (Oliver, Strong Segmentor, 490-495).

Similarly, Karen reported that she also worked non-standard hours (even though she typically did not like to) if it was for new business:

> *'If somebody is going to call me on Saturday or Sunday and its work walking in the door that I don't have to propose for or fight for, I will definitely talk to them and I will work with that and I will work on the weekends and work late at night, but it's pretty few and far between'* (Karen, Family Boundary Protector, 591-596).

This response to new opportunities may save work in the long term. Although they allowed these interruptions on occasion, they proactively and rationally made decisions to do this based on potential positive outcomes that may be achieved if they did. They were not passively allowing the boundary to be breached, but it was rather a rational decision to allow it for the purposes of longer term benefits. Karl was quicker to respond to work opportunities if there was potential for new business:

> *'Quite often, there is seed corn that I have spread around where I am expecting people to come back to me, but I never know when, but when they do come back to me there is no time to delay them, or turn them down. So, there is a tendency of saying: 'Ok we need to set up a meeting to sort this out' or to plan what needs to be done'* (Karl, Moderate Manager, 605-611).

Evie (Family Boundary Protector) talked about preferring to make her non-work time separate from work, but she also sometimes allowed extra interruptions to finish off important or urgent work:

> *'…the way I see it is if you are working more than 9-5 or 10-6 or whatever. If you are working, much more than that then I don't think it's healthy and essentially you're not being paid for that and you shouldn't be expected to do that, except for in exceptional circumstances like if you are trying to finish off a grant application, or something like that'* (Evie, Family Boundary Protector, 457-464).

This is not something that she did regularly, but completing grant applications might be worth doing sometimes in non-work time, because it could lead to important future opportunities if some non-work time was sacrificed in the present.

So, from the data it can be seen that peak work times may change the typical behaviours of the participants as they responded more readily and allowed a higher degree of interruptions than they typically would. There was no strong pattern in the data that could strongly

distinguish differences between each of the five groups individually. However, there was a general pattern that showed that these strategies were discussed more by the participants in the Family Boundary Protector, Strong Segmentor and Moderate Manager groups and rarely in the Work Boundary and Strong Integrator groups. This shows that boundary management can be flexible to the demands and characteristics of the job and that there may be an interaction between the preferences of the individuals and their responses to the demands of the job. It seems likely that this was not discussed so much in the latter two groups, because these participants are already very responsive to work and allow a greater degree of work-based interruptions naturally. For the participants in the other three groups, it seems that it was something that they did for short periods of time before returning back to their general practices.

5.8.1.3.3 Summary

The theme of work demands contributed to research question two, by showing that external factors (the factors stemming from the work context) can influence the boundary management groups and their practices. Individuals may increase their level of integration as a response to these sources stemming from the work sphere. This suggests that these external influences and pressures effect people across all of the groups and their boundary management strategies and behaviours can change to adapt to work circumstances. So, the boundary management preferences of individuals were not necessarily rigid or ideological, but at least contain a pragmatic element that enables flexibility of strategy use. This contributed to research question one by finding that demands from the workplace such as additional and unexpected workloads seemed to result in some participants, particularly the Family Boundary Protector, Strong Segmentor and Moderate Manager groups, to be more flexible and allow additional work-nonwork interruptions that they would not usually allow. This was not so common in the Work Boundary Protector and Strong Segmentor groups and this might be because they already allow a high degree of interruptions from work anyway, so perhaps there is less flexibility in how many more they could allow. So the groups differed not only in their preferences, but also in the flexibility of their practices depending on external demands.

5.8.1.4 Subtheme 4. Nature of Breaks

The theme of the 'nature of breaks' is found throughout the data and this involves the way that people describe taking breaks during the working day, or stopping work and doing something else for a while. This was found in two ways, firstly by participants changing tasks to create a break from what they were previously doing and secondly by using ICT's during break times. The flexibility of teleworking provides the opportunity to take breaks by changing tasks in a way that might not be possible in an office environment, but the breaks described by the participants often did not sound like a rest, but rather changing to do something different. The pattern across the five groups is different for each of the two subthemes of breaks and these patterns will be discussed individually within each section.

5.8.1.4.1 Changing Tasks

One way that participants in this study took 'breaks' was by changing tasks, from whatever they were doing to some other non-work related activity and they defined this as a 'break'. All four participants in the Family Boundary Protector and Strong Integrator groups mentioned using this strategy and one person from each of the other groups did so as well. This might indicate that people in the former two groups were exercising their preferences for integration, by bringing in some non-work into their 'breaks', whereas the others might not wish to do this, perhaps keeping non-work at more of a distance during the day, which would also reflect their boundary management styles. An example of this strategy is from Helena:

> *'I get bored if I'm sitting at the computer for too long, so if I need a break, I might go and make a cup of tea and put a load of washing in at the same time, and then I'll come back and carry on, or I'll go in the lounge and have a chat with my partner if he's in, or might go and iron a few clothes, so pretty flexible'* (Helena, Strong Integrator, 188-194).

Changing tasks appears to be a way to reduce boredom and recover from the task at hand and after a break, the work starts again. Similarly, Robin did non-work tasks during these break times and structured these into his working day, including tasks that he would not be able to do if he worked in an office environment:

> *'I think it makes your personal life easier, especially on lunch where if I choose to take a break and go to the laundromat, I can get my laundry done'* (Robin, Family Boundary Protector, 411-413).

Evie structured her day so that she could slot in these necessary non-work tasks at times when she would be having a break anyway and it would not be possible to manage her time in this way if she were not teleworking:

> *'It felt better for me in a way if I could try and arrange my non-work commitments and do them as natural break times, like you know at 9 o clock in the morning before I started on with work, or at lunch time or something like that…So, try and get things out of the way, or at a generally acceptable break, like a lunch break, that's when I would do it. So, I wouldn't feel guilty.'* (Evie, Family Boundary Protector, 239-255).

Teleworking may facilitate the Family Boundary Protector boundary management style, as it presents opportunities to complete non-work tasks during what might be considered work time, but there is a grey area as to whether lunch is work or nonwork. If an individual works in an office, their lunch break might likely be considered to be non-work time, but it cannot be used in the same way that a lunch break can be used at home. Completing these tasks during lunch seems to reduce the 'guilt', that Evie might feel if she were doing them at other times.

Rochelle spoke about telework giving her the opportunity to create her 'own breaks':

> *'You can make your own breaks, but you have to make sure it doesn't go the other way because you can work a lot more without a break if you're not careful. I used to balance it with a few quick household jobs, mainly because the main task for that job was sitting at the PC either talking on the phone doing assessments, or writing reports so it was essential to get up and move around, so it worked for me'* (Rochelle, Strong Segmentor, 72-79).

It seems that Rochelle may have had a tendency to overwork and that work could easily merge into time that should be taken as a break, if she did not set a firm boundary to ensure that she took the break.

So, changing tasks to have a break was found, particularly in the data of the Family Boundary Protectors and Strong Integrators. Telework might be particularly well suited to them because it offers the opportunity to conduct these types of non-work tasks during work, that may be difficult in an office. However, doing laundry or ironing might not be considered a 'break' as these are non-work necessities that need to be completed at some point and might

not be the most relaxing of activities. It seems that these activities done as a break, or during breaks, helped to split up the work day, particularly when concentration on work was lapsing and it might not be efficient to keep trying to work due to lack of concentration. These 'breaks' also appeared to have enabled the participants to complete necessary non-work tasks, helping with the general management of the total number of tasks that they needed to do in both spheres. These findings relate to those of 'time chunking', where integrating work and non-work enabled efficiency for some participants, but in this case the same was done through structured breaks.

5.8.1.4.2 Using Technology During Breaks

Breaks were used by utilising time taken away from work tasks to use ICT's such as smartphones. So using an ICT in itself could also be used as a break from work or to change focus from the work task onto ICT's. In this theme, two people from each group specifically talked about using ICT's during break times, so there was no group that spoke dominantly about this in comparison to the others. Although a strong pattern did not emerge between the groups, it was possible to see that individuals could use the ICT breaks as a means with which to create integration or segmentation, reflecting their preferences. An example of this is Angela, who created segmentation by using break times to use the smartphone for non-work purposes to prevent non-work interruptions during work time:

> *'If the phone is there, there's constant temptation to keep looking at it and you know there is always the notifications that come up, and then there's the temptation to think: "I wonder what that is" and then have a look at it, whereas if the phone is off or not near me, I can ignore it until I'm taking a break and then go and look at it'* (Angela, Moderate Manager, 217-223).

This segmentation might also serve to increase focus on the task at hand and prevent interruptions that could potentially lengthen work time. So this may help to keep control over the work boundary by enhancing focus and concentration. Serena described using this technique when focussing on something specific:

> *'Generally, if I'm writing something up, I tend to avoid emails until I get a spare minute when taking a break'* (Serena, Strong Integrator, 193-195).

Checking emails at break times rather than sporadically throughout work time, seemed to be a target for Paula:

> *'I think people check their phones way too often throughout the day and I'm probably guilty of that as well. So, for me it's like if I take a break from working, I take a break and go down and make a cup of tea or something and take the phone with me and while I'm down there I will be checking stuff and it could be personal email, it could be work email, it could be Facebook, so it kind of feels like you're on some sort of a device most of the time'* (Paula, Moderate Manager, 266-274).

Her use of these breaks for ICT use served to merge the boundary because of engaging in both work and non-work during the same break time. So, these break times also created a chunk of time where the spheres were merged and joined together through smartphone use.

This also raised the question of what the nature of a break actually was. If checking work-based communication during the break time, then it was not really a break from work. As discussed earlier in the section 'Defining where the boundary lies', the way that participants described using smartphones calls into question how they define where the boundary lies and what tasks are perceived to be work and non-work related. There is something similar here, where using smartphones for work purposes might still be considered to be a break rather than work orientated.

Although using ICT's during break times can be a way to maintain focus at work, it might also result in this time that ICT's are being used to seep through into work time and lasting longer than intended:

> *'So, if I take a break, if I go to get a cup of coffee or if I'm going to lunch, then I check [smartphone] for sure, I would also between tasks, so if I've got five minutes until a meeting starts, I'm not going to get much done on what I'm working on, I'll check it then. Now and then I feel bad because you get engrossed in the conversation and so if you were on the phone or even if it's just SMS messages, it can be distracting'* (Robin, Family Boundary Protector, 221-228).

This is another way that using ICT's during breaks may create boundary blurring as break times can lengthen into work time in some cases. As Robin mentioned above, checking smartphones can also be a way to fill the gaps of time when little else can be done, such as between tasks. John also talks about using his smartphone in the same way:

> *'It is not scheduled or anything, but if I happen to come out of a meeting early and I've got five minutes and I want to have a bit of a mind rest'* (John, Work Boundary Protector, 280-282).

Use of the smartphone during these short spaces of time was described as '*a mind rest'* by John, indicating that it might be something relaxing to do and giving a genuine break from what feels like work. Even if the smartphone use was for work purposes, perhaps it did not feel like work to him.

Jools did not abide by reserving break times for ICT use, as some of the others did as he used it frequently while working, but it was a strategy that he was aware of and something that he wanted to introduce into his routine:

> *'I don't want any interruptions and have not quite got there yet, but I'm trying to get to the stage where I don't let emails interfere. That's my new year's resolution, to try and put slots in to look at emails and not let emails interrupt me as much as possible'* (Jools, Strong Integrator, 324-328).

This strategy would involve checking emails during allocated time slots, which would serve as a break from the work that he was doing. Even though the emails were work related, they would give a break from the previous focussed work that he had been doing, while helping to reduce interruptions while focussing on other work.

5.8.1.4.3 Summary

The nature of breaks is a theme found in the data of 14 of the participants in total with a spread from each of the five boundary management categories. The finding that changing tasks as a means to take breaks contributes to research question one by showing that it might be the case that telework lends itself well to the Family Boundary Protector and Strong Integrator groups who seemed to set up their break times to integrate non-work with work. Therefore individuals in these two groups were able to establish boundary management practices that reflected their preferences in this context. This theme of 'breaks' goes some way to contributing to research question two, which asks what other factors are at play in the differences in boundary management groups and practices. This study has shown that the way that people take breaks can be relevant to the way that they manage their boundaries. The emergence of this theme has contributed to research question three, by finding that the way that individuals within the different groups take breaks, may express their boundary management preferences by using the breaks in a way that can create either segmentation, integration or merging. So the use of the same strategy of using ICT's at breaks can result in different outcomes for the boundary, depending on how the preference is expressed.

Although changing tasks and using ICT's may not appear to be a 'break', it seemed to have the same influence as taking a break by giving a rest from the task being focussed on and reducing boredom.

5.8.1.5 Subtheme 5. Evolving Approaches to Boundary Management via Social Comparisons

The themes of 'Evolving approaches to boundary management via social comparisons' emerged from the data in two ways. Firstly, through individuals positioning their own boundary management behaviours in relation to the perceived norms of other people, often friends, colleagues or unspecified others. Secondly, this went further when direct comparisons were made to the perceived negative, excessive behaviours of others (often colleagues) and these behaviours were subsequently avoided, because they were deemed to have negative consequences. The pattern across the different groups for both of these subthemes differed and will be discussed separately in each section.

5.8.1.5.1 The Process of Comparing and Perceived Social Norms

Observations of the differences in how people managed their smartphones and the perceived effects that these had on the temporal boundary, were mentioned by one or two individuals in each category and no specific differences were noticed between the groups in regard to this. There seemed to be a process of comparing their own behaviour and positioning it in relation to that of other people via direct comparisons. These comparisons could be to unspecified 'others', friends or colleagues. Angela positioned her ability to refrain from checking her mobile phone in comparison to other people:

> *'I certainly have some level of control over it, but I think there are people who have more control than me, likewise I think there are a lot of people have less control'* (Angela, Moderate Manager, 227-230).

Jill observed how much time some people spend on their phones, for work or personal use and like Angela, she perceived that her behaviour was not as extreme as some others:

> *'I'm not one of these people, I watch other people with their phones and they've got them on them all the time and they're fiddling away on them, I'm not like that, the phone can be near me, but I don't have it held with me all the time, if it's near me and I hear it buzz, I pick it up and I look at it'* (Jill, Work Boundary Protector, 401-406).

As well as comparing their own ICT use to others, there was a perception that it can be problematic and addictive for some people and this is something to guard against. Oona does not relate to technology in a problematic way, although she states that it can be problematic for other people:

> *'I think it makes it easier for me [technology], but I think it would also be potentially the case that it could take over your life and make it worse for you … I think I got the balance right, but I'm assuming it might be a problem for some people'* (Oona, Strong Segmentor, 332-338).

The comparisons that are made between people may have helped to shape and evolve their own boundary management approach and to discover what they feel works or does not work for them. The lack of boundary that Jeremy's friend lived with, made him think about his own boundaries and how a boundary-less life was not something that he was comfortable with:

> *'…a friend of mine started a business about 18 months ago and I've been mentoring him, it's been fascinating seeing what he's been going through, which is what I went through when I started and literally he has no boundaries to his days at the moment; with the industry that he is in … it is very, very difficult to allow yourself to rest and think: 'you know what I've done my good work during those five days', that ought to be me right now, but that is difficult'* (Jeremy, Family Boundary Protectors, 500-513).

The nature of his friend's job seemed to encourage constant connectivity, rather than it being purely a choice and Jeremy described how his own work made him feel under pressure and that the way that he was managing it was not working for him:

> *'Eighteen months or more ago I really started to think: 'you know this needs to change, I'm getting stuff done, but I'm not happy. It's very difficult to balance all of this'. So, then I started reading a lot of books and figuring out how other people do it'* (Jeremy, Family Boundary Protector, 564-570).

It looks as though after pondering that he was unhappy with his own way of managing his boundary, he went a step further by seeking out more ways to learn from others through books, attempting through trial and error to find something different that suited him. So he made social comparisons and observations of others in the process of developing his own boundary management style. There was also active engagement through discussions with others about how ICT's are managed, as can be seen by this quote from Helena:

> *'I have turned off the emails on my phone, probably been like that now for about six months and I found that helped my work-life balance scenario because it's not there, so I don't need to check it…And my friends ask: "how have you done that?", and you*

> *know, "I don't think I could" or "have you seen this email?" and I'm: "no because it's not urgent". So, if someone sent me an email they're not expecting me to reply to it now* (Helena, Strong Integrator, 404-415).

Over time, Helena seems to have found that disallowing access to emails via smartphone helped her to manage her boundary in a way that was more comfortable, but she explained that her friends were astonished that she was able to do this. This active discussion between the two means that they were comparing behaviours and recognising the differences between each other in the way that they managed their boundaries.

5.8.1.5.2 Learning From the Perceived Negative Behaviours of Others

The second part of this theme of social learning takes place through comparison of the participants own behaviour to that of other people whose behaviour they perceived to be negative. In this case, participants gave examples of other people's perceived excessive behaviours and talked about how this behaviour had consequences that they wanted to avoid. These specific comparisons were found most commonly in the participants in the Strong Segmentor, Family Boundary Protector and Moderate Manager categories, where three out of four in each group mentioned this type of comparison, but less so in the Strong Integrator (only one participant) and Work Boundary Protector (none). So, there was no exact pattern between all five groups, but a general pattern that emerged showed that these learning comparisons were discussed by some groups in depth, while not in others.

Evie learned from her colleagues that appeared to exhibit a strongly integrative style, that the outcomes they experienced of working constantly was not something that she wanted to characterise in her own life. The way that she perceived their behaviour became an anchor point with which to respond and shape her own behaviour, being 'strict' with herself to ensure that her nonwork is protected from intrusion. This was in stark contrast to her colleagues who provided a warning for her of how not to be:

> *'I don't like doing work or thinking about work, or work issues at any other time than standard working hours during the day. I thought that was really important because I saw so many colleagues and PhD students work from home endlessly, they'd work until midnight and go into the office and then come home and work from home until God knows when and then work all weekend, and for me that was really important to try and avoid; so I was quite strict'* (Evie, Family Boundary Protector, 435-443).

Evie's categorised boundary management style (Family Boundary Protector) permeated through her perceptions of her colleagues' style and her learning from their example reinforced her own boundary management strategies by identifying the negatives of others. The same was seen for Karen (Family Boundary Protector), who strongly preferred to protect some interruption free time for non-work. Karen observed the constant connectivity in her colleagues, which enabled what she perceived as problematic integration:

> *'A lot of consultants will send you emails with bizarre timestamps on them like two in the morning…and you just think: 'what in the world are they doing answering email at that time?' I like to turn it off and go and enjoy my family and my life and then turn it back on the next day'* (Karen, Family Boundary Protector, 533-542).

She compared her colleagues' behaviour to her conscious decision to switch the phone off to protect her nonwork time.

The Strong Segmentor category participants' data showed similar evidence of learning from perceived negative behaviours of colleagues, but they talk more specifically about this in relation to protecting their work boundary from non-work. They appear to learn from what seems to be negative role models. Kate and Oliver (both Strong Segmentors) make comparisons to previous colleagues' boundary management strategies when they worked in offices. The office environment can lead to lots of opportunities for non-work interruptions, particularly in the form of distractions from other people and they perceived these distractions as inefficient, time wasting and something to avoid:

> *'I'm thinking back to one particular job where I worked in London and I had to be in London every day and I found the pressure of that absolutely immense, the actual going into work and then I used to get incredibly frustrated and almost to the point of anger when people at work were spending time on idle chitchat rather than getting the job done, when actually all I wanted to be doing was getting on the train and coming back home'* (Kate, Strong Segmentor, 319-327).

Oliver had similar observations of his colleagues:

> *'I've worked with someone in the past, he'd watch people coming in at 9 o'clock and if they were a minute late he'd be tapping at his watch and then he would proceed to talk about EastEnders for half an hour and I think: 'I've just been stuck in traffic for two hours and you're worried about two minutes and you just wasted time all day' and you know they would be the first to go home at 5.15 or whatever the finish time was'* (Oliver, Strong Segmentor, 172-180).

Their development of their own boundary management preferences and strategies were influenced by interaction with other people. Observing and learning from what they perceived as negative behaviours displayed by colleagues, they learned about what they did not want.

Oliver also observed his current colleagues for whom he perceived their ICT use had become a problem, or it would be for him if he behaved in a similar way, because it allowed integration that he was uncomfortable with. He resists mimicking the behaviour of possible integrators, by maintaining a segmented approach and refusing to be continuously available to work or the ICT's that connect him to it:

> *'I've worked with a few people and stayed in town with them one night perhaps on a contract, and they are literally 24/7 and the first thing they do is think about work to the point where they don't have a life, they don't; these sort of people that send emails and expect a response'* (Oliver, Strong Segmentor, 319-324).

There seems to be a hint here that Oliver assumed his permanently switched on colleagues expect other people to behave in the same way. Perhaps there might be an assumption of perceived social norms leading to felt expectations about being available via phone for most of the time. These expectations are something that were negotiated and dealt with by Karl who had formed the opinion that mobile phones can be challenging as he had seen what he perceived as problematic behaviour emerge over time and become commonplace, normal and accepted by his work colleagues. He resisted what might be viewed as a perceived social norm, by having less contact with the phone, and being less accessible to it to avoid these perceived problems:

> *'I watched people when mobile phones became more accessible; I watched people have their lives dominated by the mobile phone and they almost always answer it whether they are in a meeting and I think that is utter nonsense. None of the work they were doing was that important that they needed an instant response to a mobile phone. So, I have a mobile phone; when I'm driving, it's switched off. I refuse to have it as a distraction while I'm driving. If I go to visit a company, when I enter the premises I switch the phone off and I am inaccessible while I'm working for that company. So, most of the time, people can't get hold of me by mobile phone, if I'm in the office they can get hold of me by email'* (Karl, Moderate Manager, 279-294).

Karen could see that the way her colleagues used mobile telephones had proved to be problematic to their image and quality of their work. She had learned from the mistakes of

others that being immediately available to technology and allowing continuous integration through it could result in poorer quality work. She did not want her own image or quality of work to suffer in that way and so she connected boundary management, to the quality of the work being done:

> *'I hate those things, those little beeps when the email comes in. I do my emails in the morning, at lunch, at the end of the day and I haven't noticed anybody freaking out because I don't reply immediately to emails …I know when people are responding from cell phones their grammar is bad, their spelling is bad and their thoughts aren't particularly brilliant. So that's not how I would like to be perceived. I want to be perceived as a brilliant person who is thoughtful and can write and read and spell!'* (Karen, Family Boundary Protector, 551-571).

Karl also felt that this behaviour can project an image that he perceived to be almost rude and he wanted to avoid it, even if it meant going against the grain:

> *'It might be what they have become accustomed to because they are always at the end of a mobile phone, or they will always break into a discussion with someone while they answer a phone call, but I believe that that is a) impolite and b) not required; this is possibly an age thing, that I'm old fashioned, bordering on Luddite, but that's the way I work'* (Karl, Moderate Manager, 302-307). `

Segmenting seemed to facilitate more control over the image projected and quality of the work they produced, while avoiding the potential difficulties that they felt others with a more integrating style experienced.

As previously stated there are far fewer occasions where participants categorised in the Work Boundary Protector and Strong Integrator categories talked about comparing their own boundary management to that of others and adapting their behaviours based on these comparisons. Helena (Strong Integrator) talked about receiving work related telephone calls during nonwork time and was aware of a perceived expectation of others that she should be available at any time because she had a mobile phone:

> *'I remember there was one I had a while ago when I was talking to her in the car which and then I got to the supermarket and I was like: "I really need to go now. I'll ring you back later" and I couldn't get her off the phone. I think some people are a little bit bored and they like the company; talking, and you're like: "I need to do the food shop"… so I was like: "You really need to go" but then she phoned back again and I am like: "Do I answer it, or do I not answer it? Because she's knows I'm here" and I can't concentrate and I just want to do the shopping, get in and get out'* (Helena, Strong Integrator, 364-384).

However, unlike Karen (Family Boundary Protector) and Karl (Moderate Manager) who were both much more decisive in their responses to these expectations, it seems that Helena was more at a loss of how to respond to them.

5.8.1.5.3 Summary

So this theme has contributed to research question three by showing that individuals may engage in a process of social comparison to colleagues and friends in relation to their boundary management and ICT use. These comparisons occur through observation and active discussion between people and learning from the perceived negative behaviours of others. This suggests that ICT's influence the boundary in a way that changes and evolves over time and that it is an interactive process between the individual, other people and the ICT's themselves. It also contributes to research question one by showing that there were differences between the boundary management groups and their practices in relation to this learning process. Participants in the Family Boundary Protector, Strong Segmentor and some in the Moderate Manager groups, a key theme was that these comparisons served as a form of warning. They perceived high levels of integration especially through ICT's as problematic and influencing the quality and standard of work. These participants learned from their observations of others that they did not want to manage their boundary in the same way and responded by setting limits on ICT's to avoid these perceived problems. It could be that those that did, might have been reinforcing their own boundary management preferences through this comparison. Interestingly, participants in the Strong Integrator and Work Boundary Protector groups did not make negative comparisons to the behaviours of others that were different from their own.

Section 5.8 has provided an analysis of the qualitative interview data findings, through the five subthemes of boundary management. Section 5.9, next will discuss these findings in relation to the literature.

5.9 Discussion

The discussion section will outline the main discussion points generated from the findings of the qualitative study. The first section (Section 5.9.1) will outline discussion related to qualitative research question one: *'What is the nature of the relationship between the*

boundary management groups and boundary management practices?' This will discuss each boundary management category individually to assess the relationship of the group to boundary management practices. The second section (Section 5.9.2) will outline discussion related to qualitative research question two: *'What factors influence the differences in boundary management groups and practices?'* This will bring the important themes that emerged from the data to assess the different factors that were found to influence boundary management. The third section (Section 5.9.3) will outline the discussion related to qualitative research question three: *'In what ways does ICT use influence boundary management in individuals who report managing their boundaries in different ways?'* and will focus specifically on the nature of ICT use and its influence on boundary management.

5.9.1 The Boundary Management Groups and Boundary Management Practices

This section specifically addresses qualitative research question one, which was *'What is the nature of the relationship between the boundary management groups and boundary management practices?*' It will explore each of the five boundary management groups individually in the following order: Strong Segmentor, Strong Integrator, Moderate Manager, Work Boundary Protector and Family Boundary Protector and explain the nature of each group and similarities and differences in the way that people within these groups managed their boundaries. It will then discuss some of the findings related to demographics in relation to these five groups, before providing a brief summary of the section.

5.9.1.1 Strong Segmentor

Based upon their survey scores, participants in the Strong Segmentor group displayed a segmentation preference, meaning that they preferred to keep their work and non-work separate, integrating the two as little as possible. There were some integrating behaviours reported within the data by people in this group, but overall, they seemed to have a strong boundary and separation between spheres, as would be expected based on their scores in the survey. The process of creating segmentation for this group seemed to be a very proactive one, where active steps were taken to enable the segmentation, for example a choice was made to switch the telephone off or put the laptop away after work or to not have the phone

at dinner. These proactive strategies create segmentation, but they do not just occur naturally on their own, as it took a concerted effort to make segmentation happen. The participants in this group talked less frequently about using 'time chunking' as a strategy and they tended to focus more solely on work during work time, preferring a specific work cut-off point. So, although Duxbury et al. (2014) highlighted the importance of nonwork-work interruptions, especially those with ICT's as their source, the Strong Segmentors in this study tended to avoid using ICT's for non-work purposes, or engaging in these activities during work time. Even though two participants in this group had children under 18 that they were responsible for, they still managed their boundaries to have as few interruptions as possible and family did not seem to be a significant source of interruption. So their avoidance of 'time chunking' may have been a way to avoid both work and nonwork interruptions and to focus attention on work, during the day.

There is evidence from the data that the participants in this group tried to avoid using technology for work purposes outside of working hours and this supports Kossek (2016) who suggests that people with integrative styles tend to be more dependent upon technology. It might be that the Segmentors in this study had little dependence upon ICT's using it merely for what was necessary, meaning that they were more able to distance themselves from it when they wished to. Similarly, Derks et al. (2016) found that preference for segmentation was negatively correlated to work related smartphone use and suggested that it could be because they were avoiding its use. This study found that creating a temporal boundary for ICT use was important for the people in this group and that they were choosing to avoid it out of hours as much as possible and only allowed it on specific occasions when necessary. Participants in this group did not seem to 'struggle' to achieve segmentation as Duxbury et al., (2014) found in their study. Even though they responded to some interruptions outside of work time, frequent engagement with smartphones for work purposes outside of work time did not seem to be a regular behaviour for people in this group and they did not report their attempts at creating segmentation as a source of strain.

5.9.1.2 Strong Integrator

Based upon their survey scores, the participants in the Strong Integrator group had a preference for integration and frequently mixed their work and non-work tasks. 'Time

chunking' was significant with switching between work and non-work tasks throughout the day and often into the evening. Although this study had a very small sample, within this group, three out of four had caring responsibilities for adults or children and this may have contributed to the degree of integration that they experienced. The participants talked about having to be very flexible to deal with their caring responsibilities such as taking adult family members to hospital appointments, or completing extra tasks for these family members who were unable to do so themselves.

The concept of 'role creep' (Kossek & Lautsch, 2008) was present in this group as the work day for some Strong Integrators seemed to get longer into the evening and the consequence of this was that some felt that they were overworking, which was also mentioned by Kossek (2016). It was expected that there would be symmetry of interruptions for work and non-work as suggested by Kossek et al. (2012) due to the participants scoring highly in both work and non-work interruptions in their survey scores. However, the qualitative data generated from the interviews, shows that they spoke more frequently of engaging in behaviours that increased work-nonwork interruptions, or put another way; the pattern of interruptions did not seem to be symmetrical. It could be that the participants in this group were more work-centric, or experienced a high level of pressure from work, (which three out of four mentioned) meaning that they could have more work interruptions due to these pressures, even though they might typically prefer equal integration. All four participants in this group, talked about frequent ICT use during work and non-work time, so they could be described as heavy users. It could be their heavy use of technology that opened a gateway for additional work-nonwork interruptions, especially considering previous findings that using technology such as smartphones increases work-nonwork interruptions more than nonwork-work (Tennakoon et al., 2013). If heavy ICT use can be a catalyst for work-nonwork interruptions (Cavazotte et al., 2014 and Mazmanian et al., 2013), the heavy use of ICT's of individuals in this group may contribute to the interruptions not being equally spread across both spheres.

Kossek (2016) found that people with more integrative styles tended to be more dependent upon their ICT's than their segmenting counterparts. In this study, there seemed to be less of a need for a temporal boundary with ICT's for the participants in Strong Integrator group. They did not necessarily talk about this lack of temporal boundary in negative terms, or as something that they resented. However, they did seem to like being connected whether it

be for work or non-work via their smartphones. Another finding in this study, was that three out of four participants in this group mentioned that they often engaged with work activities during evenings or weekends via smartphones or laptops if they were bored, or had little else to do during their non-work time. Although it cannot be said for certain that these participants were 'dependent' upon their phones, they did seem to be quite attached to them and used them as a portal with which to enter work when non-work time felt wasted. So, in a sense the smartphone was a convenient way to ease boredom and provide meaningful activity.

5.9.1.3 Moderate Manager

Based on the survey scores, the participants in the Moderate Manager group had moderate interruptions in both directions. Participants in this group tended to display both segmenting and integrating behaviours at different times, sometimes being very heavily focussed on work and other times focussed on non-work. So, switching between the two, they used segmentation and integration flexibly as it suited their needs. The data generated from the interviews showed that overall the participants in the Moderate Manager group talked about a wide range of behaviours that they used to manage their boundaries, behaviours that were likely to increase and decrease interruptions. Some behaviours likely to increase interruptions were spending long periods of time very heavily focussed on work, such as working long days over a period of time and being very responsive to work demands for some periods of time. Behaviours likely to decrease interruptions also occurred, such as banking time for later when non-work would be enjoyed without interruption, or ICT's had temporal limitations placed upon them to reduce interruptions into the non-work sphere. So, this group engaged in a wide variety of both integrating and segmenting behaviours. The frequency of the range of strategies can be seen in Table 38 (Appendix 6.6). This range might be expected as they were similar to the description of Moderate Managers from Kossek & Lautsch (2008), showing that they engaged regularly in both integrating and segmenting type behaviours.

However, although the individuals in this group scored moderately, they did not necessarily express a mid-way relationship to boundary interruptions, but could use either end of the boundary spectrum as it suited them. This was a similar finding to that of MacCormick et al.

(2012) who showed that 'dynamic connectors' used their smartphones in both segmenting or integrating ways, to use the whole range of the available spectrum in a way that suited their own purposes at the time. In this study, sometimes participants had very strict temporal boundaries for their ICT use to maintain segmentation such as switching off for periods of time. However at other times, they were prepared to be more lenient if they were working on something significant. This behaviour shows that they were using their ICT's in a way that reflected their boundary management preferences; that of Volleying and that they may utilise both segmenting and integrating behaviours in using them. Richardson & Benbunan-Fich (2011) pointed out that people with segmenting or integrating preferences can use their ICT's in a way that reflects their preferences. This study shows that this was also the case in a different preference group, that of people scoring in the middle with no clear preference for either segmentation or integration.

5.9.1.4 Work Boundary Protector

Based on the scores of the survey, the participants in the Work Boundary Protector group tended to focus heavily on work, allowing it to interrupt their personal time, but protecting their work time from non-work interruptions as much as they could. Work seemed to be of great importance to these participants. Although this is a very small sample, more men than women were in this group and it was the only group out of all five that was predominantly male. This could reflect pressure for men to focus on work more than their non-work activities as suggested by Duxbury & Higgins (1991).

Three out of four participants mentioned using their laptops outside of work time for work purposes, for example carrying their laptop around for opportunities to do work, using it for work while with family, or taking it on holiday. In this teleworking context, it might be easier for people to continue working on their laptops, or not pack them away at the end of the work day and still have them present during what should be non-work time. In a sense it may be easier to be drawn back in to work, if the paraphernalia is still around the home environment and more difficult to set a temporal boundary if the spatial boundaries are not kept, as suggested by Mustafa & Gold (2013). As people in this category were generally highly focussed on work, the temptation to keep using ICT's after work, especially laptops, was an issue for the participants in this group and they mentioned that they experienced conflict with

significant others over their working behaviours, such as using laptops and phones during nonwork time. This supports (Kossek et al., 2006) who also found that participants with integrative styles experienced more work-family conflict. However, in this study, the conflict tended to be when significant others disapproved of how much they were working, so even if they did not perceive their behaviours as problematic, conflict arose if others had an issue with it. In this sample, frequent ICT use did not guarantee conflict, but the attitudes of significant others influenced whether or not conflict arose.

The work-family conflict experienced by this group could be linked to one-way role transitions, as switching between work and non-work is more one sided in this group. Put another way, they seem to stay in work mode for a lot of the time and even when trying to transition into non-work roles, it seemed to be difficult to make the full role transition as their ICT use prevented the psychological switch into non-work (Richardson & Benbunan-Fich, 2011). Using ICT's such as laptops and smartphones seemed to prevent the role transition by pulling them back into the work realm. It might be that if participants in this group or with similar behaviours decided that they wanted to transition into non-work more fluidly and benefit from the potential recovery from work that this could bring, they could place temporal limitations on their ICT use for work purposes. The participants in this group displayed some temporal limitations on their ICT use for non-work purposes and these limitations prevented nonwork interruptions entering work. This finding chimes with that of Richardson & Benbunan-Fich (2011) who found that preferences for segmentation and integration could be displayed through smartphone use because people with integration preferences used them more outside of work time, but people with segmentation preferences displayed their preference by switching the phone off altogether. This study goes further to highlight the nuances in individuals who do not exhibit purely segmenting or integrating behaviours, such as Work Boundary Protectors who used the functions of their ICT's to switch off from one sphere while connecting with the other.

Interestingly, three out of four participants in this group expressed some dissatisfaction with the way that they were working; they felt that work had taken over and they were not investing enough into their personal lives. Although, this study did not specifically explore job satisfaction, from the interview data, it seems that participants in this group were less satisfied with their boundary management than the other groups. This dissatisfaction was

seen in the guilt that they felt over the impact that their work behaviours had on others and also feeling that they were missing out on social life by working so much. This supports research by Kossek et al. (2006) who found that individual wellbeing was predicted by more separated boundaries and a feeling of control over how and when work was done. The individuals in this group might benefit from weighing up the costs and benefits of their current working style due to their feelings of dissatisfaction and conflict with others, to see if a trade-off might be reached that could facilitate a boundary management style that encourages personal wellbeing (Kossek & Lautsch, 2008).

5.9.1.5 Family Boundary Protector

Based on the scores of the survey, the participants in the Family Boundary Protector group preferred to keep their non-work separate from work, although they did allow some interruptions from non-work into work. Kossek & Lautsch (2008) found that people who place an emphasis on non-work did not necessarily do so because of caring responsibilities for children, but they may have valued friendships, family, hobbies or causes which they placed a high priority on. This study reinforces these findings, showing that in this group with high non-work interruptions, they did not necessarily have them due to family commitments that served to pull them into the non-work sphere. In this study three out of four participants in this group were under 30 and had no children under 18. They mentioned that non-interrupted personal time was very important for them, such as socialising and participating in leisure activities and groups, taking time to rest and recover from work and having 'me time'. Even the participant in this group that did have children, frequently mentioned a need for these non-family related activities and that time on her own to engage with hobbies was important. Kossek (2016) suggests that younger people such as millennials tend to desire more work-nonwork separation, or specified time for leisure as well as work. Participants in this group used a range of strategies to ensure that they maintained this need for protected non-work time, such as maintaining a psychological or physical distance from ICT's after hours.

Even though personal time was important to the individuals in this group, it did not mean that they did not take work seriously or that it was not important to them. All the participants in this group talked about how work was a priority for them and they all had jobs with

responsibility and a career focus. So, the allowing of additional non-work interruptions and attempts to reduce work interruptions into non-work time did not seem to be due to a lack of conscientiousness or care about the work sphere. The participants in this group seemed to have a psychological need for uninterrupted personal time and it might be the case that they understood how important recovery from work was for them to maintain a relationship with work that they could manage. The literature in relation to recovery and burnout (Derks & Bakker, 2014 and Derks et al., 2014) suggests that time away from work is important to prevent burnout in the long term and the participants in this category seem to be managing this recovery time well and in a way that suits them, but this did not diminish their commitment to their work.

The participants in this group also expressed their boundary preferences in the way that they managed their ICT's, but it was not a direct mirror image to those in the Work Boundary Protector group, who used theirs to connect to work and disconnect from non-work. In the Family Boundary Protector group all four participants did try to disconnect from work related ICT use outside of working time, although they did this to different degrees, ranging from a full scale regular work-related digital detox, to switching off smartwatches after being gently reminded by friends that it was Saturday night. However, the participants also varied in how many non-work interruptions they allowed during their work time via ICT's, with two out of four engaging in minor ICT use such as checking non-work emails or Facebook. However, on the whole, the extent to which the participants in this group used ICT's for non-work purposes was minimal and it did not seem to create significant distractions or difficulties for them or conflict in the way that work use during non-work time did for the Work Boundary Protectors. This again ties into Richardson & Benbunan-Fich (2011) study, showing that boundary preferences were reflected in ICT use, however, this shows that the relationships are perhaps more nuanced. As the Family Boundary Protector group tried to limit work related ICT's outside of work, it did not automatically follow that they would bring non-work use frequently into work, or to allow it to distract from their focus. In any case, they did not talk about their ICT use as problematic or creating problems for them in the same way that Work Boundary Protector group participants did.

5.9.1.6 Demographics and the Boundary Management Groups

This study contained 20 participants so it is not possible to make significant generalisations based on the groups themselves or the different demographic variables within the groups. It could be coincidence, but a few noticeable demographic differences occurred within the allocated groups. The Work Boundary Protector group consisted of three males and one female, the highest proportion of males in any of the groups. The nature of this group is work orientated, so it might be expected that more males would be found in this category, because other studies show that males experience more pressure to be work focussed than women (Duxbury & Higgins, 1991).

There was a wide spread of age ranges across the groups, but it was noticed that the participants that specifically expressed that they did not feel the need to respond quickly to smartphones, or frequently check for communications were all over the age of 40 (Karen, Karl, Angela, Kate, Rochelle, Maxwell and Oona). It could be the case that these participants were less dependent on ICT's because laptops and smartphones did not exist during their early working lives. They may have developed their working practices before advances in mobile technology and found ways of working that do not require extremely quick responses. On the other hand, (Jools, Robin, Georgina, Helena, Serena and Gary) seemed more attached to their ICT's, or delivered quicker responses and these were all younger participants in their 20's and 30's. Recent studies have found that age is negatively related to smartphone addiction behaviours (Van Deursen, Bolle, Hegner & Kommers, 2015). Although this study did not consider addiction, it does chime with this literature in that younger people were more likely to rely on them regularly, whereas older people did not express such a need for connection to them in this different and work-related context. There are also generational differences in work-nonwork boundary expectations (Smith, 2010) which could be at play in the way that people use their ICT's.

The caring responsibilities that the participants had did not show patterns within the groups except to say that three out of four participants in the Strong Integrator group had some degree of caring responsibilities for adults or children. Previous literature has shown that boundary management practices can be very much influenced by lifestyle factors such as caring responsibilities and that women tend to do more home-based tasks than men

(Lachance-Grzela & Bouchard, 2010). It might have been assumed that as the Family Boundary Protector group might have had more home-based responsibilities such as childcare, hence the more frequent nonwork-work interruptions in this group, but this was not the case. So, in this study whether individuals had caring responsibilities or not seemed to have little bearing on their boundary management category and degree of interruptions between spheres. This suggests that the degree of interruptions experienced were more likely due to personal preferences in relation to both spheres.

5.9.1.7 Summary

So this section has discussed each of the five boundary management groups in turn and looked at how the boundary management groups relate to boundary management practices to contribute to qualitative research question one: '*What is the nature of the relationship between the boundary management groups and boundary management practices?*' What this study found in relation to this question was that as far as these participants go, their boundary management preferences seemed to be key in the way that they actively managed their boundaries. It could not be assumed that the nature and frequency of interruptions in either direction were largely due to lifestyle differences, as the expression of personal choice came through strongly. This study supported the literature that more integrating styles tend to experience more work-nonwork conflict (Kossek et al., 2006), but also added that whether or not conflict occurred was very much influenced by the significant others in the life of the individual. Kossek and Lautsch (2008) also suggests that individuals with a high degree of non-work interruptions do not necessarily have these due to caring responsibilities and this study supported this, by finding that the non-work interruptions of Family Boundary Protectors were not related to family related responsibilities. Another way that this added to knowledge was that ICT use reflected the boundary management preferences of individuals as Richardson and Benbunan-Fich (2011) found, but this applied also to the previously neglected preferences, such as Work/Family Boundary Protectors and Moderate Managers as well as Segmentors and Integrators. The way that individuals reflected their preferences through proactive management of their ICT's and this was nuanced. This section has explored the nature of the boundary management groups and their practices and shown that there are differences between each of the five groups in relation to how the individuals within those

groups practiced managing their boundaries, especially in relation to ICT use and management of these devices. The next section will explore the factors influencing the differences in the groups and their practices.

5.9.2 Factors Influencing the Differences in the Groups and their Practices

This section will focus on the findings of the study that will specifically address qualitative research question two, which was: '*What factors influence the differences in boundary management groups and practices?*' It will examine a number of themes that emerged from the data that seemed to be influential in differences in boundary management practices between the groups. The following three topics will be covered in order: external factors influencing boundary management, boundary management and use of break times and proactivity and proactive boundary management strategies. There were other factors such as ICT use, but these will be covered in section 5.9.3, which looks specifically at ICT use. This section will end with a brief summary before the next section, which will address qualitative research question three.

5.9.2.1 External Factors Influencing Boundary Management

Work demands, which are a factor external to the individual, were found to influence boundary management practices in that participants responded to perceived work demands by increasing how much they worked, thereby increasing the number of work-nonwork interruptions that they experienced. The interview data shows that all participants in the study regardless of their group, did allow more work-nonwork interruptions when there were significant work demands. The interview data showed that although the participants did tend to have strong preferences, they were also flexible and adaptable to be pragmatic. An example of this was during peak work times or when new work opportunities arose where participants in the Strong Segmentor and Family Boundary Protector groups took on more of a Moderate Manager style. According to Kossek & Lautsch (2008) Moderate Managers often tend to work in peaks and troughs and this study showed Volleying could be used interchangeably with the primary preference of the participants as a response to work demands. However, it was ICT's that facilitated these additional interruptions. Tennakoon et

al., (2013) found that work demands were related to ICT use on nonwork days, but not work days, indicating that work demands could be a driver behind people choosing to use ICT's to connect to work on non-work days. This study supported these findings because even participants that preferred a more segmented boundary preference admitted to using ICT's outside of work time, when work was particularly demanding. However, this study differs because they mentioned using ICT's not only on non-work days for this purpose, but also on evenings of work days too. So, this study found that in this sample, this additional connectivity driven by work demands was more general rather than specific to non-work days.

Kossek (2016) discusses 'Sunday night being the new Monday morning' because people check their emails at the end of the weekend, thereby shortening it and in effect starting work on Sunday evening instead. In this study it was found that work was brought earlier into the day, by individuals checking emails very early in the morning before starting work. This strategy may have been engaged in to reduce an unmanageable build-up of work emails and also to be prepared for what their work day might hold. So, starting to check and respond to emails earlier in the day may be a strategy to help cope with a high volume of communications being received. Although this allows additional work-nonwork interruptions, it may be a proactive strategy to enhance coping and reduce potential problems that could occur through a significant back log of work that might prove challenging to deal with.

Individuals were influenced to manage their boundaries differently, based on cultural factors of the organisation, such as working for an American company where it was more commonplace to allow work-nonwork interruptions into weekends. Social learning theory could also be at play here, as people might flexibly mimic the way that colleagues behave in different contexts (Bandura, 1977). Individuals may change their boundary management if the cultural context that they are working in changes. Although it is not clear whether everyone would do this in a similar situation, cultural factors such as these add pressure to adapt to the perceived boundary management expectations of the culture worked within.

So, responsiveness to work demands seemed to be more natural for individuals with integrative preferences, but more flexible for participants with more segmenting preferences. However, this shows that external factors such as work demands also influence how the boundary is managed and that extra work-nonwork interruptions may be allowed in response

to pressure from external sources. This may give a partial explanation for why personality traits were not strongly linked to interruptions in Study One. The findings of this study may suggest that regardless of personality variables and preferences, external pressures such as demands are likely to be a significant factor in the allowance of work-nonwork interruptions. The next section will discuss another unexpected theme emerging from the qualitative data, that of boundary management and the use of break times.

5.9.2.2 Boundary Management and use of Break Times

The nature of breaks is a theme clearly present in the data and this study adds to understanding the way breaks influenced the boundary management activities of the participants. This theme was unexpected and emerged through the flexible nature of the Template Analysis. Home-based teleworkers used breaks differently than they would have been able to use them in a traditional office environment. When needing a break from work, some household tasks could be completed such as doing the dishes or laundry and it seems that from the data this use of breaks was more common with participants who were in more integrative groups. This relates to the literature on telework that suggests that teleworkers may complete non-work tasks while working at home as a way to manage work and household responsibilities (Wheatley, 2012). However, although this may be the case, this goes further because completing non-work tasks during natural breaks may serve to lengthen the work day, thereby also increasing work interruptions into non-work later in the day. This relates to Kossek (2016) who talks about the difference between 'non-work time' and 'time for self' as being very different from each other. In this study, the strategy of completing necessary non-work tasks during natural breaks, facilitated having more 'time for self' later, because once non-work chores were completed during the day, non-work time could then be free from work and chores too. This dedicated 'time for self' might be used for disengagement or relaxation and so it may be a useful strategy to encourage recovery from work (Derks & Bakker, 2014 and Derks et al., 2014).

Along with household tasks, breaks were also used to check communications or use ICT's and this had differing influences on boundary management for different people, depending on how they used it. Using ICT's could extend the break to accommodate more time on the smartphone, thereby increasing interruptions into work. However, others were more strict,

and kept this type of ICT use to break times, which was segmenting in the sense that it limited interruptions to specific and restricted times. This shows that the same strategy used by different people could have either a segmenting or integrating influence on the boundary, depending on who was using it and again, this is something that can be shaped according to the preferences of the individual. Wajcman and Rose (2011) found that nonwork-work spillover caused by using the internet for non-work purposes during work time was not interruptive. However, this study found this to be a little more nuanced because for the participants in this study, it largely seemed to depend upon how they personally controlled the use and length of the break time, rather than there being a linear relationship.

Using technology during breaks can also make for simultaneous engagement in both spheres as both are connected through the smartphone at once, which could be encroachment of work into non-work. The question of what a 'break' is was also raised because if a break is to stop work, then continuing to use the smartphone for work purposes means that the break from 'work' has not occurred. On the other hand, if it is a break from the task being completed, a change could be as good as a rest and this change may allow for a break from the task, while focus is switched to another task. Although, the definition of what a break is was not completely clear, the participants in this study did not report feeling negative about their breaks or the way that they took them. This linked in to the literature on ICT use during breaks (Doo Kim, Bologna, Furst-Holloway, Hollensbe, Masterson & Sprinkle, 2014, Epstein, Avrahami, & Biehl, 2016 and Skatova, Bedwell, Shipp, Huang, Young, Rodden & Bertenshaw, 2016) which all challenged the assumption that using ICT's during breaks were automatically detrimental to the user. It was more the case that ICT's were used to make the most efficient use of the time available regardless of what they were used for. So this study presented no evidence that using ICT's during breaks were either perceived negatively, or led to any known negative consequences.

Nevertheless, if ICT's are used to continue to engage in work related activity, then this may interfere in the recovery from work process, which may have implications for personal wellbeing. Recovery from work is important to maintain wellbeing and reduce the risk of burnout (Derks & Bakker, 2014 and Derks et al., 2014) but what counts as 'recovery' during a break is brought into question here. If the individual engaged with activity on their smartphone during their break that they found enjoyable, it might be that this results in

disengagement and recovery. If they use their ICT's for some purpose that did not achieve this effect, then this could be potentially more problematic. In any case, although no evidence has been presented to suggest that ICT use during breaks is perceived as harmful, the long term effects of these behaviours is not yet known (Skatova et al., 2016). Similarly, using ICT's during these breaks filled time that might have been used for something else, although quite what they might be used for instead is unknown. So although, this study showed that boundary management preferences played a role in the way that breaks were used, it raised many more questions than it answered. These unanswered questions in regard to breaks might be better answered through longitudinal studies that could measure the actual effects on boundary management and wellbeing of using breaks in different ways.

5.9.2.3 Proactivity and Proactive Boundary Management Strategies

The construct of the proactive personality was not considered as part of this study from the beginning, but the theme of proactivity unexpectedly emerged throughout the qualitative data and its strength within the data indicates that it is potentially an important factor. The proactive personality can be defined as '*the relatively stable tendency to effect environmental change'* (Bateman & Crant, 1993, 103). People with proactive personalities act to change their circumstances and take initiative to adapt their physical environment (Bakker, Tims & Derks, 2012). Studies of the relationships between proactive personality and the FFM traits found that extraversion, conscientiousness and openness are all positively related and neuroticism negatively related, although the construct is more than a sum of these traits (Major, Turner & Fletcher, 2006 and Fuller & Marler, 2009). This qualitative study aimed to explore other factors that were involved in boundary management through research question two, as the assessed personality traits showed small correlations. Proactive personality relates to the FFM traits as stated above, but it is also a trait in its own right and based on the strength of the theme of proactivity within the data, it may be something to explore further.

Proactivity was particularly prevalent in the segmentation behaviours of participants as they talked about specific and proactive ways that they managed their technology to create segmentation. Desktop alerts such as email message pop ups, are often set up as default (Microsoft, 2017) and so to prevent these potentially distracting alerts and pop ups, the individual would need to switch these off themselves. Strategies such as switching off or

physically removing the ICT's require some kind of physical action, or put another way; without the physical action, the ICT's would remain available to interrupt and distract. So, it might be that to manage ICT's to reduce unwanted interference, requires proactive strategies to override their default settings. Considering the wide and frequent use of these devices (Den Nagy, 2014), they may be more of a source of interruptions for individuals that do not handle them proactively.

The strategies used to create a temporal boundary for smartphones was also proactive and these strategies did not merely develop by chance, but occurred over time through trial and error and experimentation to develop a repertoire of techniques. As an example, three people mentioned that they had developed a strategy where they checked emails three times a day, rather than having emails open all day which they found more interruptive. Dery et al. (2014) found that individual perceptions of smartphones changed over time with their familiarity and use. This study added to this, by finding that in these participants, the repertoire of strategies that individuals used also developed over time and they started to use preferred strategies that they had tested and got used to.

The data also showed that although participants often identified particular strategies that they could use, they did not always choose to use the entire repertoire that they had. This could be seen when individuals knew how to switch off alert functions, but chose not to. These strategies may be used in a proactively planned way, such as being in the habit of switching the phone off after work, or more reactively out of frustration when one is sick of work. So, as previous studies have shown (Mustafa & Gold, 2013 and Kreiner et al., 2009) remote workers engage in a range of strategies to manage their boundaries, but this study has shown that knowing about a particular strategy does not guarantee using it, or using it all of the time.

Likewise, the participants were proactive in their strategies to deliver their work/nonwork boundary preferences for example using proactive strategies to reduce nonwork-work interruptions in the participants in the Work Boundary Protector group and vice versa for the Family Boundary Protector group. The proactive strategies that they used either increased or decreased interruptions from either sphere, but to reduce these interruptions involved proactive and deliberate involvement of the individual. According to Dery & MacCormick (2012) individuals need to set their own boundaries when it comes to using ICT's and this

study has shown this happening in a very proactive and specific way, to create the boundaries desired.

Time based nonwork-work interruptions were negatively related to proactive personality in a study by Cunningham & De La Rosa (2008). This relationship was specifically related to controllable nonwork-work interruptions, but the trait was not related to other types of boundary interruptions, indicating that the trait may be more active in boundary management in relation to specific controllable factors that influence the boundary. Cunningham's study found that it was not related to work-nonwork interruptions and the authors suggested that it could be that if work demands are at play, they are not necessarily controllable by the individual, so proactivity may play less of a role. In this qualitative study, a degree of proactivity was found in the work demands theme, as it could be argued that by occasionally dealing with electronic communications outside of work time, this could reduce a build-up of work that could become problematic later. Similarly, occasionally responding to work outside of work time when new opportunities were on the horizon was another way that participants proactively managed their work, even if it meant going against their typical segmenting preference. So, these strategies that were used occasionally to manage work demands, were proactive rather than reactive and this shows that this relationship is nuanced and complex and that proactivity might play a role in the way that people respond to work demands, contradicting Cunningham's research. However, this could be explored further through research into whether proactivity plays a role in how individuals respond to work demands and the types of strategies that they may employ.

Proactivity was also found throughout the theme of 'evolving approaches to boundary management' as individuals learned from the boundary management practices of others and made conscious choices about how they wished to manage their own. This was a process that took place and changed over time through actively learning from the experiences of others, such as the way that people used their ICT's and then deciding whether they wanted to use similar or different strategies. The literature on proactive personality found that motivation to learn (Major et al., 2006) and learning goal orientation (Fuller & Marler, 2009) were both correlated to proactive personality, that people scoring more highly in this trait tended to take on more responsibility for their own learning and seeking out opportunities to learn. This may be relevant in the way that participants in this study engaged with their

process of learning about the management of their ICT's. Using smartphones are relatively new territory and so how to manage them is also something that needs to be learned over time. The qualitative data shows that some participants actively engaged in that process and were proactive in learning what worked for them. Proactive personality could be a trait that is relevant to this learning process and future studies might assess the relationships between proactive personality and ICT use, particularly the strategies that proactive people use to manage their technology and how beneficial these are.

Proactive personality may also be something to explore in a remote working context, where individuals play a significant role in how they manage and structure their working environment in comparison to traditional office workers (Hislop & Axtell, 2009). Bakker et al. (2012) showed that people with proactive personalities were more likely to engage in job crafting, or actively shaping the work environment to create opportunities for effective working practices. The second major theme in the template was 'work crafting' and although this was not intended at the beginning of the study, it was clear that a great deal of consideration and thought went into the working practices of the participants within this qualitative study. This was also seen in the way that participants actively shaped the use of their ICT's. Fuller & Marler (2009) suggest that proactive personality may be beneficial for new ways of working such as roles that require frequent changes. Home-based teleworking is unique to everyone, as each home and the circumstances surrounding it are different. Future studies could explore the relationships between proactive personality and teleworking practices because proactive people may manage their telework practices in a beneficial way. For example a very proactive individual might be able to get around some of the more challenging aspects of telework such as the isolation (Mann & Holdsworth, 2003) and perceived lack of promotion prospects (Chen & Nath, 2008), to ensure that they still achieve positive outcomes regardless of these drawbacks.

5.9.2.4 Summary

This section has looked specifically at some of the main factors that were found to influence the different boundary management practices within the different groups to answer qualitative research question two. The specific FFM traits were not found strongly within the qualitative data and so it was not possible to draw conclusion about the FFM traits. However,

traits were found to be relevant to boundary management in the form of proactivity, which could be linked to 'proactive personality' and this was found to be very active in the way that segmentation was practiced. The theme of work demands was found throughout the data and it indicated that boundary management preferences played a role in how people responded to these. People with more integrative styles tended to respond more naturally to these demands as a matter of course, whereas those with more segmenting preferences did so when they deemed it absolutely necessary. However, this indicates that work demands may be a particularly important factor in work-nonwork interruptions, because this study showed that individuals felt pressured enough by them to act in a way that was not in line with their general preferences. Differences were also found in the way that different groups managed their breaks and it was found that similar strategies could be used to create segmentation or integration based on the preferences of the individual. So to answer the second research question: '*What factors influence the differences in boundary management groups and practices?*, this section has shown that work demands, the nature of breaks and proactivity were all found to be factors that seemed to have influence through this study.

This section has addressed research question two, but the next section will discuss the findings of this study in relation to the literature to contribute toward research question three.

5.9.3 The Influence of ICT's on Boundary Management

This section will address the findings of the study that are related to qualitative research question three which was: *'In what ways does ICT use influence boundary management in individuals who report managing their boundaries in different ways?*' Firstly, it will address how individuals use segmentation and 'switching off' to manage and control work-based interruptions and this functions differently for different people. Secondly, the way that ICT's can be used to integrate the boundary and some of the issues related to this integration are discussed. Thirdly, the way that ICT's influence boundary management was found to be a fluid and evolving process and this is discussed before this section is summarised.

5.9.3.1 Segmenting and 'Switching Off'

This qualitative study found that overall the participants in the segmenting groups such as the Strong Segmentors and Family Boundary Protectors refrained from using ICT's outside of work time, for example by switching it off, or distancing themselves from it in some way in comparison to the integrating groups. However, one main finding of Dery et al. (2014) was that over time individuals had moved away from seeing their devices as something to switch on or off as a means to exert control, but more as a source of flow that could be managed. In this study participants in these segmenting groups still seemed to hold the view, that switching off was a direct way to gain control over interruptions and to set a clear and distinct temporal boundary. This finding is more in line with Richardson & Benbunan-Fich (2011) whose study showed that segmentation preference could be displayed by switching off mobile technology after hours. Similarly, Derks et al., (2016) concluded that people with segmenting preferences likely turned their phones off after hours and this study provided support for this idea. Although the current study had a limited number of participants, from the data generated, distancing from technology after hours was a strategy used by participants with segmenting preferences and it could be the case that switching off was a deliberate means with which to preserve non-work time.

Derks et al. (2014) found that smartphone users experienced more difficulties in switching off from work, but his study showed that individuals' relationships to their smartphones differed in regard to whether or not they felt that they had switched off. In this study, people with more segmenting styles tended to use their ICT's less outside of work time and people with integrative styles (Work Boundary Protectors and Strong Integrators) more often kept theirs switched on and available to it. This does suggest that these groups may have felt less able to switch off, as they mentioned being frequently drawn back into work via ICT's. However, even if they did experience more difficulties in switching off, whether or not this bothered them was unique to the individual and was also influenced by the significant others around them. So, it was not necessarily the case that staying switched on was experienced problematically. However, as heavy users who do disengage from their smartphones at times tend to experience better wellbeing (Derks & Bakker, 2014), the way that individuals feel about their smartphones behaviours on a day to day basis may not automatically be linked to long term outcomes.

In this study, it seemed that although some participants deliberately avoided work related ICT use during non-work time to be able to psychologically switch off, others were still able to physically use smartphones but psychologically switch off very quickly after using it. Some participants that did allow themselves to quickly check or send emails during non-work time, did not claim to have felt drawn back into work. The participants from this study seemed to fall in to three categories in relation work related ICT use during non-work time: 1) people who recognised that ICT's stopped them from switching off and so avoided it, 2) people who did use it during non-work time and it stopped them from psychologically switching off and 3) people who used it but did not report feeling that it stopped them from psychologically switching off. So, these minor interruptions did not result in an inability to psychologically 'switch off' for all participants and for some 'knowing' and being aware of the content of their messages was comforting, rather than disturbing. These findings are interesting in the light of Matusik & Mickel, (2011), Nansen et al. (2010) and Duxbury et al. (2014), who grouped their participants based upon their boundary management behaviours and found that one group in each of their studies struggled to manage their smartphones in a way that they were satisfied with. These groups were given such labels as: 'trade-offs' and 'struggling segmentors'. In this study, some participants talked about a similar battle with their ICT's (those in group two), as the way they were using them was interfering with their non-work lives. However, these were not all found in the same boundary management group. Some participants from the Work Boundary Protector, Family Boundary Protector and Strong Integrator groups described this type of struggle. As this was found in individuals across three of the five categories and not by everyone in each category, it could suggest that this 'struggle' to create segmentation may be found in people with different degrees of work/nonwork interruptions. None of the participants in the Strong Segmentor or Moderate Manager groups mentioned having a particular battle with their ICT's, indicating that these individuals had achieved the degree of segmentation that they were satisfied with.

Some participants had a very definite idea of what was work and what was not, while others did not perceive the act of checking or sending emails for work purposes outside of work time as work-related activity. This raised the question of where the boundary between work and non-work lay, as different participants labelled activities that might be considered 'work' differently. This ties in to the work of Wajcman & Rose (2011) who found that some people

who used the internet for work outside of work did not perceive it to be an extension of work. However, this study found that there was variation between different participants and not everybody failed to recognise this as work. A key example of this was the participants in the Family Boundary Protector group, who all had a very definite sense of what work related activity was and this included smartphone use out of hours. Even if they did engage in this work related behaviour on occasion, they recognised it as such. Their behaviours were similar to those participants in Golden & Geisler's (2007) study who used, their PDA's with a repertoire to 'protect the private' and keep their private lives separate. This study showed that these kinds of behaviours might be linked to broader boundary management preferences and in this case, being very aware of what was and was not 'work' was key to delivering this.

5.9.3.2 Integration of the Work/Nonwork Boundary

Studies show that highly integrative boundary management styles are related to work-life conflict, so people who prefer to integrate tend to experience more work-life conflict than people who prefer to segment (Kossek et al., 2006). This study, although a small sample supported these findings, as people in the more integrative categories talked more frequently about conflict than people in the other groups. However, this study went further because it explored different types of boundary management groups beyond the segmentation and integration poles as many previous studies have (Derks et al., 2016 and Piszczek, 2017). The advantage of this was that more fine grained findings were possible and specifically that it was not only Strong Integrators that reported some conflict but that Work Boundary Protectors who do not fit directly into the segmentation-integration scale did also. In fact, the Work Boundary Protector group participants talked even more about work-life conflict than the Strong Integrators did. Based on the participants in this study, it seemed to be that work-nonwork interruptions enhanced conflict with significant others more than merely having a high degree of integration. People with high integration would have more non-work interruptions than Work Boundary Protectors and this might indicate that more attention is being paid to the non-work sphere. This might serve to alleviate some conflict in comparison to Work Boundary Protectors who may spend less time in non-work and if neglected could lead to resentment from others in their non-work sphere. So, although Work Boundary Protectors and Strong Integrators both have integrating styles, there may be differences in

the conflict that they experience due to their different boundary management strategies and preferences. This suggests that it might not be the integration itself that was a source of the conflict in the non-work sphere, but more that one directional work interruptions were more problematic.

Some participants in the Work Boundary Protector and Strong Integrator groups reported experiencing work-life conflict and the individuals that did were all reflective about their excessive ICT use and how they felt it was causing conflict with their families. Although, this reflection took place, they seemed powerless to act differently and almost crippling; it did not make for positive action. This partially supports Cavazotte et al. (2014) whose study showed that excessive smartphone users reflected on their mobile phone use, but reflection did not necessarily result in action either. Instead reflection was used to justify excessive use of the mobile phone, such that while recognising that it was a source of conflict with others, it brought benefits such as ease of communication. This similarity to Cavazotte's study, was only found in the participants who had similar heavy use patterns, to the participants in their study and not in participants who used their ICT's less frequently. This study also went further to find that for some participants, this passive reflection was not only related to smartphones but laptops used for work purposes too. So, it could be the case that in a teleworking context it is easier to keep laptops out after working hours and continue to use them which might encourage conflict with family members in a way that a smartphone also could. The importance of proactivity in managing ICT's has already been discussed above in Section 5.9.2.3. However, as Nansen et al. (2010) suggests that polychronicity is associated with home-based teleworking and that it tends toward natural integration more so than office work, it could be that teleworkers need to make more of a concerted effort to achieve some kind of segmentation. So, a more active approach to ICT management, rather than passive reflection on it might be necessary in this naturally merged environment as a way to reduce this conflict.

Derks et al. (2016) found that integrators who did not use smartphones after work experienced more work-life conflict than those that did. However, the participants in Derks study were not home-based workers, meaning that they were working in other environments away from home. In this small sample, those that experienced conflict did so because of the responses from significant others to the ICT use and these responses defined whether or not

there was conflict. Smartphone use may play a different role in conflict for home-based and office based workers, for example if an office worker stays at the office to work after hours they may use their smartphone to contact family and let them know, which might reduce conflict. In a teleworking context, ICT's may be perceived to be in the way by significant others if they are physically located in the same space. This may explain the differences from Derks et al.'s (2016) study.

Another influence of ICT's on the boundary found in this study, was that Strong Integrators talked more often about experiencing work-nonwork interruptions than nonwork-work through their smartphone use. It was expected that they would also talk as much about non-work interruptions, which would be in line with their survey scores. However, they talked as though ICT based non-work interruptions were less of an issue than work-nonwork interruptions. Duxbury et al., (2014) found that the smartphone was more likely to cause boundary permeability in the direction of work to non-work rather than the other way and that it did not have an equal effect on boundary interruptions. Similarly, on assessing the nature of the interruptions from nonwork-work from Table 43 (Appendix 6.12, page 449), it was found that non-work interruptions were more frequently talked about from non-ICT sources. This suggests that for the participants in this study, ICT's may play a bigger role in work entering non-work than the other way. Wajcman et al., (2008) found that the internet was used more for non-work during work than the other way, so this study contradicts these findings. This difference could be because Wajcman's study was not purely of working individuals, but whole families, some of whom were not working. This being the case their study might have picked up more non-work interruptions from the participants in the study who did not work. Wajcman's study is also now quite dated and as ICT's have become more an everyday part of people's lives, it might be that they are now using them differently, especially as it has been found that perspectives on mobile phone use change and evolve over time (Dery et al., 2014). This study showed that in this work-based context, ICT's were a significant source of work-nonwork interruptions more so than nonwork-work interruptions, which were more often non-ICT related.

5.9.3.3 Evolving Boundaries, Social Learning and Comparisons in Learning to Manage Boundaries

One key theme that emerged from the data was that of the fluid and evolving way that ICT's were managed by different individuals and that boundary management was a 'work in progress' and not something that was fixed. Dery et al. (2014) showed that attitudes and perceptions toward smartphones changed over time as the devices became more complex and sophisticated and their use became normalised. So, individuals' relationships to their smartphones were evolving over time as the user became accustomed to using them. This study partially supported this, as the participants described the way that they used their smartphones, especially in relation to their boundary management, was something that they came to grips with over a period of time. In this study, some participants experimented with their smartphones and its features until they found something that worked for them. Examples of this are leaving alerts switched on or off and having a smartphone and then choosing to go back to a limited mobile phone because it felt less intrusive. This evolving process might be an interesting basis for another follow-up study of these participants to explore whether over the passage of time, the way that they used the smartphones changed even further still. As smartphone technologies are changing so rapidly and their capabilities and functions will likely continue to increase, they would need to accommodate these changes in some way in this evolving process.

Another way that the use of ICT's was fluid and evolving was through individuals reflections on their own use and learning from others how to use it. Cavozotte et al. (2014) found that some participants reflected on their own excessive mobile phone use behaviours as 'crazy', because they were so aware of the effects that it was having upon them, but were at a loss to change it. In this study, none of the participants defined their own ICT use as 'crazy', but reflected on some other peoples' use as very problematic and out of control. Mazmanian's (2013) study found that the highly driven participants in their study associated their excessive smartphone behaviours with their own perceived positive traits, such that it was an outlet to express their ambition and hard-working attitude. This is in strong contrast to this study, where some participants deemed similar excessive behaviours as negative and something to avoid. In these studies (Cavazotte et al., 2014 and Mazmanian et al., 2013) the participants were all highly ambitious, working in demanding environments and it seems that there may

have been positive reinforcement (Bandura, 1977) of heavy smartphone use. They might have been encouraged to use smartphones heavily and this then embedded into the culture of the organisations that they were working for. This kind of positive reinforcement did not appear to be present in this study, but instead some participants associated perceived negative traits such as workaholism to this kind of excessive use behaviour. However, these participants deemed their own ability to take control over the phone and disconnect from it, as related to their perceived positive traits such as being able to relax and enjoy down time. Either way the smartphone use behaviours of individuals could be justified by relating it to the perceived positive traits of the individual using it, depending on what they perceived as positive traits.

The participants who observed the heavy use behaviours of others, learned from this excessive behaviour which they deemed negative. However, rather than social learning which is learning from the observation and imitation of others (Bandura, 1977), it could rather be a process of 'vicarious reinforcement' which is: *'a change in the behaviour of observers as a function of witnessing the consequences accompanying the performances of others'* (Bandura, 1971, 230). In this study, heavy use and its consequences such as working late at night or answering emails while socialising after work were observed. These consequences were deemed negative, such as representing having 'no life' and based on this negative appraisal, these behaviours and subsequent consequences were avoided by actively creating segmentation. The different findings between this study and Cavazotte et al. (2014) and Mazmanian et al. (2013) could be because these studies focussed on excessive use and in very highly demanding and ambitious occupations. This study assessed a range of individuals with different smartphone usage behaviours from different occupational groups. In this study, only a portion of participants used ICT's very heavily (predominantly in the Work Boundary Protector and Strong Integrator groups) and although it cannot be said that these two groups are identical to the participants in the above studies, there are some similarities in their ICT usage. The rest of the participants in this study did not show that they used ICT's in a similar way. It might be the case that the process of reflection on these devices is different for people who are not heavy users and those who do not wish to be and for them the process of reflection might be one way to create action to prevent heavy or problematic use.

This vicarious reinforcement (Bandura, 1971) was found in participants in the Strong Segmentor, Family Boundary Protector and Moderate Manager groups, but not the Work Boundary Protector or Strong Integrator groups, who used ICT's for work more often. Although the first three groups compared their behaviours to those exhibiting heavier use, it did not work the other way and these reverse comparisons were not made by the latter two. Even though some participants in the Work Boundary Protector group seemed less satisfied with their management of ICT's, they did not make positive or negative comparisons to others that they felt were handling their ICT's well. It could be that, happier with their own boundary management styles, those in the first three groups might have been reinforcing their own choices throughout this process, whereas those that were less happy with it did not reinforce theirs through comparison (Bandura, 1971).

Derks et al. (2015) found that colleague expectations were not relevant to work-nonwork interruptions but that expectations of managers were. Therefore, the behaviours of colleagues such as expecting others to keep their communications open, or to respond to communications after hours, did not pressure other colleagues to do the same, although similar expectations of managers did. This study also found that the participants did not automatically mimic their colleagues or cave in to pressure to use their smartphones either. However, it went further, in showing that there was a process of social learning taking place as stated above and this was an interactive process that was thought through, rather than just taking social cues from others (Bandura, 1971 and Bandura, 1977). However, as this was a study of home-based teleworkers there could be potential differences in these social interactions based on the workplace environment. An example of this is that colleagues in closer physical proximity may feel under more immediate pressure, whereas teleworkers who physically see colleagues less frequently may feel under less pressure to mimic them. As this study focussed on home-based teleworkers who are typically more isolated and have less social interaction with colleagues (Morganson et al., 2010), this could be one reason why some of the observations that led to learning were not through physically 'seeing' behaviours of colleagues. Some were rather through the witnessing of virtual behaviours of others, such as seeing timestamps on emails indicating that they had been sent very late in the evening. So, this learning also occurred through virtual behaviours, not just behaviours that were physically 'seen'.

5.9.3.4 Summary

This section has discussed this study in relation to the literature to answer qualitative research question three which was: '*In what ways does ICT use influence boundary management in individuals who report managing their boundaries in different ways?*' This study found that people with segmenting preferences still used physically switching off as a means to control the influence that ICT's had on the boundary. Similarly, engaging with ICT's for work outside of work time was different for different people and although some found it disturbing and a pull back into work, others were able to do so and psychologically switch off quickly afterwards. Therefore, the relationship between physically and psychologically switching off were complex and not exactly the same thing. Some individuals had a much more certain idea about what they defined as work related and what they did not, which influenced the way that they exercised their use of ICT's and subsequently its impact upon the boundary. In relation to integration, this study found that heavy use of ICT's seemed to be linked to work-life conflict and it seemed to be the extra work-nonwork interruptions that were a source of this conflict and whether or not conflict resulted was also dependent upon others in the life of the individual. Reflection was also part of the relationship of ICT's to boundary management, although reflection itself did not necessarily result in action which could then change the nature of the relationship between ICT's and the boundary. The ways that ICT's influenced boundary management was also something that evolved over time and was not static and one way that this occurred was through a process of social learning by observing the behaviours of others. However, this was done more by people with more segmenting and moderate preferences than those who engaged in very heavy smartphone use indicating a difference between people who manage their boundaries differently. These observations and learning experiences that influenced boundary management practices came through the virtual world as well as through direct physical observation. When learning from the smartphone use of others, individuals that did this tended to link their smartphone behaviours to their own perceived positive traits, that may serve to reinforce their own initial boundary management preferences.

5.9.4 Limitations

As with all qualitative studies, their focus is on analysing rich data (Bryman & Bell, 2011) and in this case understanding the boundary management strategies of individuals within groups. This means that this study may be relevant to other people with similar characteristics, but may be limited in its generalisability for other people or groups that are very different from this sample. The sample size of 20 participants and four in each of the five boundary management groups was chosen because it was not possible to make the groups any larger due to the size of the participant pool. Even though the sample size was adequate (Mason, 2010 and King, 2012), the Work Boundary Protector group had one interview that yielded limited data, so more participants in each group would have mitigated against this and it might have been possible to develop more themes or more fine grained differences between the groups had there been more participants in each one. When selecting the participants for interviews, only the scores and their relationships to the boundary management categories were taken into consideration in the selection process. This gave an unequal number of male and female interviewees, but a good spread of ages naturally emerged. It was not possible to include demographic variables in the selection process as well as the boundary management groups, because the size of the participant pool did not allow this. If the participant pool were larger, selecting for an equal spread of demographic characteristics might have facilitated further exploration of the potential similarities and differences between the participants based on their demographic characteristics.

The participants that were interviewed were all white-collar, highly educated and mostly professionals or managers, limiting generalisability to other groups, as many other work/nonwork boundary studies are also limited in the same way (Hislop & Axtell, 2011 and Shorthose, 2004). However, it did consist of people of a range of ages and different life circumstances, including individuals that were not part of a dual earner couple with young children as much work/nonwork literature has been criticised for doing (Ransome, 2007). All interviewees self-selected into the interview pool from the survey, suggesting that some degree of self-selection bias may be at play. They may have felt more heavily invested in telework as a topic area, which might have encouraged them to agree to an interview more than those that chose not to (Sue & Ritter, 2012). However, their interest in the topic would not necessarily be problematic, it might just be that the participants are more representative

of individuals that are interested in the topic than those who are not. The participants all worked in different geographical areas and for different organisations, in a variety of sectors, making generalisability more difficult than if they were all selected from one company.

A decision was made to manually analyse the data because manual analysis would have the advantage of closeness to the data (Bassett, 2004) and because there were 20 interviews, a relatively small sample, the advantages of manual analysis would outweigh the disadvantages (Seror, 2005). However, although there were only 20 transcripts to analyse, there proved to be a substantial amount of data (over 100,000 words of transcripts) that after being analysed also required frequency counting to validate the emerging themes. The additional step was taken to also count the recorded boundary management behaviours for clarity of similarities and differences between the groups. The process of counting the data became time consuming and a software package such as NVIVO would have easily allowed this additional step of counting the themes and behaviours to be done very quickly. In this case, data analysis would likely have taken place more quickly had NVIVO been used to analyse the data.

5.9.5 Future Directions

This study highlighted the importance of proactivity and potentially proactive personality for teleworkers and the ways that they may manage their work/nonwork boundary in such a context. Future studies could go further to look more in-depth at the implications of proactive personality for home-based teleworkers and whether there are differences between individuals who are highly proactive and those who are not. This study consisted of a range of highly conscientious people and likely highly proactive, but as these traits are correlated to each other (Major et al., 2006 and Fuller & Marler, 2009), a study that compared individuals who were very different in these respects might yield interesting findings in relation to their boundary management practices.

This study highlighted that there were differences in the way that individuals exercised their boundary management preferences, beyond the segmentation-integration paradigm and that some individuals do not fit clearly into one category or the other. As this is the case, future studies may wish to take a wider variety of boundary management preferences into consideration, because there can be significant differences in the way that they deal with

their boundaries. Focussing purely on the poles of this paradigm, could lead to rich data being missed and relevant findings for non-polar individuals not being discovered.

This chapter has presented and discussed the findings of Study Two and Chapter Six next will bring together and discuss the findings of both studies together.

Chapter Six
Discussion Synthesising Study One and Study Two

6.1 Introduction

The overarching research question for this entire study was *'Do personality traits and ICT use influence how teleworkers manage their work/nonwork boundary?'* To answer this question, three quantitative and three qualitative questions were formulated and answered through Studies One and Two. The questions to be addressed using quantitative methods were discussed in relation to the literature in Chapter Four and the three qualitative questions were discussed in Chapter Five. Figure Three (Chapter 4, Section 4.7, page 172) visually displays the links between the two studies. This Chapter will now integrate both studies in a discussion related to the overarching research question and will firstly focus on the first component of the overarching research question; 'personality traits' and discuss the findings of both studies together in relation to personality traits and their influence on boundary management and ICT use. The second section will focus specifically on the findings related to ICT use and their influence on the work/nonwork boundary, further discussing the ICT component of the overarching research question. The third part will explore the work/nonwork boundary component of the overarching research questions, specifically by discussing two other components; work demands and breaks that were found to be of influence in boundary management. Following this, the focus will turn to the mixed methods nature of the study and summarise the links between the two studies, how they complement each other and how the findings of the second build upon the first (Cameron, 2011).

6.2 Personality in Study One and Study Two

The FFM personality variables were tested in Study One to explore their relationships to work/nonwork interruptions and to frequency of ICT use. Study One found that conscientiousness (r = -.16) and neuroticism (r = .14) were related to work-nonwork

interruptions. Conscientiousness (*r* = -.13), dutifulness (*r* = -.11) and impulsiveness (*r* = .12) were related to nonwork-work interruptions and extraversion (*r* = .16), gregariousness (*r* = .20) and neuroticism (*r* = -.19) were related to frequency of smartphone use. The results of Study One indicated that these traits were influential to a small degree in the boundary management practices of individuals and their ICT use and gave a sense of the nature of their relationships. However, there was still substantial unexplained variance. Study Two attempted to assess other important factors emerging from the qualitative data, to explore what some of these other unknown influential factors might be. These other factors may go some way to explaining why personality had small correlations to boundary interruptions.

One aim of Study Two was to further examine the role of personality through creating an a priori code in the original template. This meant that personality related themes were looked for within the data, to explore in greater depth how some of these traits might function in home-based teleworkers' boundary management practices. However, it was found that the theme of personality emerging from the data did not develop well to form into a meaningful whole, especially regarding the FFM traits. This might indicate that the influence of personality was not verbalised in the interview, but could be better captured through the questionnaire method used in Study One. Although the participants mentioned their own or other people's traits on occasion, limited data were generated on this topic. A large proportion of rich data related to the way that individuals used their ICT's was developed and this is discussed in more depth in Section 6.3 below. Nevertheless, one main finding from qualitative Study Two was the significant theme of 'proactivity' which formed a common thread throughout the theme of Boundary Management. This unexpected finding might be very much related to personality theory, particularly that of 'proactive personality' (Bateman & Crant, 1993). Participants in Study Two seemed to engage in proactive strategies to reduce interruptions and talked about making a concerted and proactive effort to manage their boundaries and their ICT's as a means with which to maintain some control over their work/non-work boundary. The concept of proactive personality has been found to be positively related to conscientiousness (Major et al., 2006 and Fuller & Marler, 2009) and the sample in this study showed high scores in conscientiousness overall, hence the severe negative skew in the conscientiousness variable. It could be that proactivity as a theme was so prevalent in the qualitative data due to the high degree of conscientiousness of the

participants. Put another way; as conscientiousness and proactive personality are related, the participants in this study may be highly proactive and this could be one reason why proactivity was such a strong feature of the qualitative study.

Study One showed that the FFM personality traits of conscientiousness and neuroticism were found to make up a small amount of the variance of work-nonwork interruptions, but it may be the case that the proactive personality trait, could also explain a portion of the variance, especially considering that it can be a better predictor of some outcomes than the FFM traits (Fuller & Marler, 2009). A further study could assess whether it plays a bigger role in work-nonwork interruptions in this highly individualised home-based telework context, where individuals are required to manage so much of their environment and boundaries themselves, proactivity could be a pertinent trait to consider further. Similarly, the only other FFM trait found to be related to work-nonwork interruptions in this study was neuroticism and this is negatively related to proactive personality (Major et al., 2006 and Fuller & Marler, 2009).

Bakker et al. (2012) found that proactive personality was related to job crafting, where individuals actively shape their work environment, but in a teleworking context this may be more of a necessity than a choice, because the teleworker needs to set up their environment (Hislop & Axtell, 2009). Similarly, motivation to learn is related to proactive personality (Major et al., 2006) and the engagement in trying new ways of working based on learned experience was a theme that emerged in the data of Study Two. It might be the case that people scoring highly in this trait may deal with this need to learn and try new ways of working in this unique context beneficial, especially if it is a natural expression of their personality. Home-based teleworking contexts may foster the expression of proactive traits because they depend upon the employee organising themselves and being trusted to work independently with little supervision (Chen & Nath, 2008). Li, Liang & Crant (2010) found that proactive personality was related to organisational citizenship when the organisation was perceived as fair by employees. Proactive personality might play an important role for activating this positive citizenship behaviour, regardless of the geographical distance from the organisational base, providing that the teleworker feels fairly treated by the organisation. Similarly, as the relationship between proactive personality and job performance was found to be moderated by person-job fit and person-organisation fit (Erdogan & Bauer, 2005), individuals that have a good fit to their organisations and jobs might express proactive traits

more in a teleworking context. Therefore, proactive traits might function differently in different work contexts and roles (Rodrigues & Rebelo, 2013), but the nature of home-based telework is one wherein proactive traits might be brought to the forefront and this could be why it was so frequently discussed in Study Two and might be of significance in further studies assessing traits in a home-based telework context. So, proactive crafting was articulated in the interviews, where personality was not and personality was captured through the questionnaires of Study One where proactivity was not. Therefore, using mixed methods facilitated these findings which were mutually supportive.

After finding that proactivity was important in Study Two, this finding can then be brought back to Study One with a new perspective. One surprising finding from Study One was that conscientiousness was negatively related to work-nonwork interruptions when it was hypothesised (in hypothesis 1a) that it would be positively related, because of the propensity of highly conscientious people toward ambition and work orientation (Barrick & Mount, 1991 and Costa & McCrae, 2006). Hypothesis 1b was supported by the finding that conscientiousness was negatively related to nonwork-work interruptions. Cunningham & De La Rosa (2008) found that proactive personality had no relationship to time-based work-nonwork interruptions and a negative relationship to nonwork-work interruptions. The latter is in line with this study, but the former is contradictory, although it might be thought that they would have similar results due to the relationship of proactive personality and conscientiousness. The difference could be because Cunningham's study was not in a telework context and there may be differences in the interruptions individuals allow into their non-work time if they have already been working from home all day, compared to if they have left an office and subsequently reconnect to work while at home.

The potential relevance of proactive personality to this topic is something that was found through the qualitative study, so one of the strengths of using mixed methods, was that using a different method enabled this finding (Teddlie & Tashakkori, 2010). This shows that the second study adds to the first by suggesting that this personality trait may be of relevance to the telework and boundary management context and it tells us more about the potential important traits in this context than Study One would have done alone (Cameron, 2011). So, the relationship of the FFM traits to work/nonwork boundary management was largely explored through Study One, but the use of a different method showed that proactivity was

a key theme and that proactive personality could be an important trait in teleworkers' boundary management.

So, to answer the first part of the overarching research question: *'Do personality traits and ICT use influence how teleworkers manage their work/nonwork boundary?',* this mixed methods study suggests that some of the FFM traits do have a small influence on the frequency of boundary interruptions experienced by individuals. Some of the FFM traits did not influence boundary interruptions in this study, but the qualitative findings suggest that the 'proactive personality' trait may be influential in the way that people manage their boundaries and the interruptions between spheres that they experience. The extent to which proactive personality is influential could be examined through further studies.

6.3 ICT Use in Study One and Study Two

The second part of the research question: *'Do personality traits and ICT use influence how teleworkers manage their work/nonwork boundary?'* relates to ICT use and this section will now draw the two studies together to discuss their findings related to the influence of smartphones, tablets and laptops on boundary management. These three different ICT's will be discussed separately, because in Study One they were found to have varying effects on boundary management and Study Two also confirmed the differences in how these technologies were used.

6.3.1 Smartphones

The results of Study One found that work-nonwork interruptions were related to frequency of smartphone use (r = .31), which partially supported Derks et al. (2014) that smartphone users found it difficult to switch off from work. It might be that the opportunities that the smartphone gives to access work and the more frequently that is engaged with, the more it links the individual back into work, making it difficult to psychologically switch off. However, staying connected or switching off was not something found to be linear in Study Two and the qualitative data added colour and illuminated these findings in several ways (Bryman & Bell, 2011). Firstly, although Dery et al. (2014) found that as people possessed smartphones for longer, they stopped perceiving it as something to switch on or off, but more to manage the flow of. Study Two found that physically switching off and separating was still used as a

segmenting strategy for some people. When smartphones were a source of interruption, these interruptions were viewed by some as intrusive and deeply problematic, while others seemed unfazed. So, it was not just the frequency of the interruptions experienced via smartphones, or that they kept individuals connected into work (Derks et al., 2014) that was important, but the interpretation of the interruptions by individuals and how they responded to them.

Some participants deliberately avoided using their smartphones out of hours so that they could be sure to switch off from work and for them it seemed necessary to do this to be able to switch off psychologically. Therefore, for some psychological detachment was a mediator between time spent away from work and recovery from it. Others occasionally engaged with their smartphones, but seamlessly switched between work and non-work without it making them feel that they were still switched on. They appeared to have forgotten that they had just engaged with work via their smartphones after a few seconds. Indeed, some claimed to check their phones for work communications and not perceive this checking as being work related, where others did perceive this as work. The sense of boundary and what was defined as work varied for different people. So, the relationship between physically switching off and psychologically switching off was not necessarily linear and individuals developed their own strategies to manage their feelings of being switched on. Although Study Two tells us more about individual perceptions of interruptions via smartphones and that for some people, these minor interruptions during non-work time were not perceived as problematic, the long-term effects of these minor interruptions on people who allowed them are not known. Whether these interruptions contribute to reducing opportunities for recovery from work as suggested by Derks and Bakker (2014) and might have potentially harmful effects could only be established by follow up studies.

Study Two also illuminated Study One further by finding that individuals engaged in a process of reflection on how they were using their smartphones. So, it was not just the case that smartphone use increased interruptions, but that individuals were actively engaged in contemplating the nature of these interruptions and how they wanted to manage them. This finding was similar to Dery et al. (2014) who found that as smartphones became more popularly used, individuals changed their views toward it, as they got to grips with the nature of it. However, in this study, this reflection also led some participants to compare their own

smartphone behaviours to those of others and to associate their own use with positive traits and the excessive use of others as negative, which was opposite to the findings of Cavazotte et al. (2014) and Mazmanian et al. (2013) who found excessive users justified their behaviours by associating it with positive traits such as ambition. This may be explained through the concept of 'vicarious negative reinforcement', whereby observing the behaviours and perceived negative consequences of the actions of others, individuals adapt their own behaviours to avoid such consequences (Bandura, 1971). So, it was predominantly people with preferences for segmentation that perceived the permanently switched on behaviours of others as negative and something that they did not wish to mimic.

The participants whose surveys suggested that they had high levels of work-nonwork interruptions, such as individuals in the Strong Segmentor and Work Boundary Protector groups, talked in their interviews more about conflict with significant others more than individuals in the other groups. This finding is very much linked to Study One because the high degree of work-nonwork interruptions in these groups as demonstrated through the survey, might be expected to encourage work-nonwork conflict as is suggested by previous literature (Boswell & Olson Buchanan, 2007). However, the frequency of interruptions does not tell us about how people respond to or think about the interruptions that they experience. Study Two showed that some participants had reflected and were aware of the conflict that their technology use behaviours were having on others around them. Nevertheless, while some aimed to make changes to accommodate this, the reflection seemed to leave others frozen and with no demonstrable action to make changes, which was similar to the findings of Cavazotte et al. (2014), who also found that reflections on smartphone use did not necessarily lead to action for high frequency users.

6.3.2 Laptops

Study One found a small effect for frequency of laptop use and work-nonwork interruptions (r = .11) and Study Two explored the influence of laptop use on boundary management further through qualitative research question three. Study Two found that laptops did play a boundary blurring role for some individuals in the study. Laptops as a source of work-nonwork interruptions largely tended to come through using laptops on evenings and weekends and checking work emails or slipping into doing more work because the laptop was

still switched on and in front of the individual using it. Participants who switched their laptops off or did not use them during these times did not discuss this as being an interruptive problem. The qualitative study contained a small sample and the findings are based upon what people talked about while being asked the same questions during an interview. Nevertheless, in the qualitative data it did look as though laptops were less of an issue for creating interruptions than smartphones, supporting the stepped effect findings of Study One where smartphones had the largest correlation to work-nonwork interruptions, followed by tablets and then laptops. Previous research found that PC's were not related to work-nonwork interruptions (Chesley, 2005), but the difference in these findings could be because laptops are more portable and may be easier to stay connected to after working hours especially while living and working in the same space. In a telework context it may be easier to keep using a laptop while sitting in the same space where if an office worker used a PC at work, they would not take it home and if bringing a laptop from work to home, they would have to set up the laptop to commence work again. So, for individuals that are more susceptible to this behaviour and would prefer fewer interruptions, they might benefit by limiting their laptop use to specific physical spaces and times within the home (Mustafa & Gold, 2013) to reduce these interruptions and potential conflict.

6.3.3 Tablets

A small effect was found for frequency of tablet use and work-nonwork interruptions (r = .27) in Study One, showing that the more tablets were used, the more work-nonwork interruptions occurred. An analysis of the qualitative data in Study Two revealed that tablets were not discussed frequently enough by the participants in the interviews to form any qualitative conclusions about tablets and Study Two did not add to these findings. So even though tablets are growing in popularity as a means to access the internet, they are still not as popular as smartphones and laptops as work tools (Ofcom, 2015), which may be a reason why they were not often discussed by the participants in this study.

So, to answer the second part of the overarching research question: *'Do personality traits and ICT use influence how teleworkers manage their work/nonwork boundary?'* this study has shown that ICT use does influence the work-nonwork boundary to an extent. Study One found that the more frequently ICT's in the form of smartphones, tablets and laptops were

used, the more work-nonwork interruptions were experienced. This suggests that they can have a boundary blurring effect, but that the degree of influence may be related to the size, portability and ease of use of the ICT. In addition, Study Two showed that they influence the work-nonwork boundary in the way that people both learn and choose to use them and this influence is part of an evolving process that that is not necessarily fixed.

6.4 Boundary Management Influences on Interruptions in Study One and Study Two

Mixed methods research has become increasingly popular (Denscomb, 2008) and as personality traits were found to play a small role in boundary management in Study One, Study Two aimed to investigate their function further and to discover more about other factors that could be influential. This blending of different research paradigms was able to contribute to new and different insights that would not have been found otherwise (Creswell, 2009) and this section covers two themes, those of work demands and breaks and explains how mixing methods enabled a better understanding than a single method would have (Cameron, 2011).

6.4.1 The Influence of Work Demands on Interruptions

One connection which emerged between the two studies was that of the influence of work demands on work-nonwork boundary interruptions. In Study One, work demands were found to be related to work-nonwork interruptions (r =.26) more strongly than the personality traits that were tested, indicating that this external factor might be influential in work-nonwork interruptions. In Study Two, work demands were also discussed by the participants and the subtheme of 'work demands' emerged strongly from the data. The subthemes within the overarching theme of Boundary Management from the template also found that work demands were something frequently discussed by participants as a means to increasing work-nonwork interruptions. Even participants with a strong preference for segmentation mentioned that if work was particularly busy they would allow extra interruptions, even though they typically preferred not to. These qualitative findings build upon Study One's findings and also the findings that excessive work demands may encourage people to spend additional time on work outside of work time (Voydanoff, 2005 and Tennakoon et al., 2013).

Across each of the five boundary management categories individuals talked about responding to specific work demands by connecting more to work through their ICT's. Participants, in the Strong Integrator and Work Boundary Protector groups did so more readily and the other three groups more sparingly and when absolutely necessary. So work demands were an external factor that influenced work-nonwork interruptions in spite of personal preferences. Overall, this study suggests that work demands might be more of a significant issue in boundary interruptions than personality traits and future studies could further assess these relationships.

Although work demands have been found to increase stress and reduce job satisfaction (Yildirim & Aycan, 2008), this study showed that the relationship did not seem to be linear. Study One showed that the more work demands experienced, the more interruptions occurred and Study Two showed that individuals' responses to work demands were complex. Study Two showed that individuals managed their work demands strategically, for example pre-empting expected workload increases as a way to prevent longer term difficulties and prevent stress. An example of this was when participants increased their checking of ICT's outside of work time during peak work times or as preparation for potential problems arising. These were proactive strategies to decrease the prospects of an unmanageable workload, so even though work demands led to increased interruptions as shown by Study One, these proactive strategies could be performed to reduce stress rather than increase it. Study One showed clearly that work demands increased frequency of interruptions and contributed to building a picture of this overall relationship. Study Two showed that sometimes individuals may allow some interruptions to reduce potential stress in the longer term.

6.4.2 Breaks and Boundary Management

Another unexpected finding from the study was that the subtheme of 'Breaks' which emerged from the qualitative data in Study Two and had not been considered as a specific boundary management issue in Study One. The first Study did not consider the nature of breaks or their influence on the work/nonwork boundary. Nevertheless, Study Two enabled the subtheme of breaks to emerge from the qualitative data (Creswell, 2009) and this showed that the way that people used their breaks was relevant to their boundary management practices.

Some participants used ICT's during their break times, predominantly smartphones; so during these break times they would integrate work and non-work through using the smartphone for work and non-work purposes. This raised the question of what the nature of the break actually was and whether it was something used to recuperate from work or whether using technology in this way prevented the break from occurring. Derks & Bakker (2014) suggests that connecting to work via smartphones during non-work time could be potentially damaging to individuals because the connection interferes with recovery and recovery from work is essential to preventing psychological burnout. This being the case, this kind of technology use during breaks might interfere with recovery from work for the individuals doing this. However, Doo Kim et al., (2014) found that when individuals go online as a means to break, it provided momentary recovery from work and helped them to maintain a positive attitude to work, so these types of breaks may not necessarily have negative outcomes. So, whether a break involves detaching from work altogether, or changing task serves to be as good as a break; may be a matter of preference for the individual. Nevertheless, although this may be perceived differently by different people, it is not yet known what the long-term effects of these types of breaks may be on long term wellbeing (Skatova et al., 2016).

The participants in this study used breaks as both integration and segmentation strategies. Some participants used ICT's during break times so that it was not used in work time; a segmentation strategy, while others used it for personal use during break times, which sometimes resulted in the break time being lengthened and then entering into work time. The latter links to the literature that suggests that integration during the work day can result in the work day becoming longer to make up for the time lost completing non-work activities during work time (O'Neill et al., 2009). This study showed that integration during breaks may play a role in this too, because for some individuals, if ICT use in breaks is not strictly time limited, it may eat into work time, which is then made up for later by working for longer. As the theme of breaks was an unexpected finding, it was not explored in the literature review, but it was found to be relevant to the boundary management practices of individuals and to link to the literature on breaks. Study Two found breaks to be significant in boundary management practices, which went beyond Study One which did not consider this issue. Although the literature on breaks challenges the assumption that using ICT's during breaks is automatically detrimental (Doo Kim et al., 2014, Epstein et al., 2016 and Skatova et al., 2016),

there is limited literature specifically related to boundary management preferences and breaks or the way that they influence work/nonwork interruptions. In this study, perceptions of breaks played a role in break management, but this raised more questions about breaks than it answered. There is scope for further studies that could explore boundary management preferences and use of breaks and the long-term consequences of break choices that are not yet known.

6.5 The Mixed Methods Design and Synthesis of the Data

This study was a mixed methods study which brought together both quantitative and qualitative data and analysis. One common criticism of mixed methods research is that quantitative and qualitative paradigms are fundamentally incompatible, fixed polar-opposites of each other and so cannot be mixed (Creswell, 2009). However, in this case; Study One provides an understanding of the issues on an overarching level, assessing the broader relationships between the relevant theories, which utilises the scientific method. Study Two on the other hand explores the issue from the perspective of the observations of the participants' own teleworking practices; utilising the subjective, socially constructed stance (Lee, 1991). The use of both approaches is '*mutually supportive, rather than mutually exclusive*' (Lee, 1991, p342) because the different approaches allow for an exploration of telework on different levels. Therefore, these paradigms do not oppose each other when used in this way, but rather enable the same topic to be explored on different levels; each of which cannot be explored by the other.

Equally, there are similarities in quantitative and qualitative methods that cast doubt on their being incompatible; for instance qualitative data is sometimes analysed by quantitative means. In thematic analysis, the 'frequencies' of themes often determine which themes are discussed and in this study, the themes were counted as an important means to prevent anecdotalism that might occur if theme frequency was not accounted for (Bryman & Bell, 2011). Counting the frequencies of boundary interrupting behaviours in the interview data is not a perfect measure (Vogt et al., 2014, May, 2001 and Punch, 2005) and the difficulties associated with this method was covered in Chapter 5, Section 5.7.6, page 202. Table 37, Appendix 6.6, p395, displays a frequency count that measured how many times individuals talked about specific boundary management behaviours during their interview in which they

were all asked the same questions. The frequency count data indicates that the way that individuals talked about their boundary management reflected the way that they scored in their surveys to an extent. Put another way, Family Boundary Protectors for example, talked more about nonwork-work interrupting behaviours and work-nonwork reducing behaviours and overall these reflective patterns are shown across the boundary management groups. These findings show that when asked to talk about their boundary management behaviours, the qualitative data produced supported the survey data in this respect or that the interview and survey data largely concurred. This concurrence is important because it shows that the two studies are mixed at the data level and are interlinked and supportive of each other which is a necessary requirement of mixed methods research (Leech & Onwuegbuzie, 2009).

The two studies were also interconnected because the interview participants were selected based on the strength of their survey scores to strongly represent the group that they were allocated to (Tashakkori & Cresswell, 2007). So, it was expected that the participants should display strong characteristics of their allocated group, for example participants in the Strong Segmentor group, were expected to display segmenting behaviours and a clear preference for segmentation (Kossek & Lautsch, 2008). The data generated from the interviews supports this, because the participants in each group displayed strong within group similarities and differences to other groups based on the way that they talked about their boundary management. This indicates that they did have the strong characteristics expected based on their group allocation and although this is a very small qualitative sample and generalisations cannot be made, in this study the survey seems to have measured these preferences well, showing that both studies complement each other (Teddlie & Tashakkori, 2010).

6.6 Chapter Summary

This Chapter has gone back to the original overarching research question and shown how the two studies have answered this question. It also synthesised the two studies by showing how they are interlinked with each other and mixed at the data and analysis levels (Leech & Onwuegbuzie, 2009). Using a mixed methods approach had several advantages over using a single method. Firstly Study Two supported Study One by some of their similar findings, such as that the interview data reflected and confirmed the survey data, indicating that the survey measured boundary management preferences well. Study One found that laptops were less

of an issue for boundary management than smartphones and this also seemed to be confirmed by the way that the participants talked about their ICT use in their interviews. Study Two also helped to reveal new findings through using a different method that Study One did not show for example, that breaks were of relevance in boundary management and that the proactive personality trait might also be an interesting area for further exploration. Using a mixed methods design also illuminated Study One, by providing additional insights through Study Two, for example that work demands were mitigated by planning and preemptive action to reduce their burden, so the relationship was more complex than the correlation between work demands and interruptions. Similarly, smartphones did create interruptions when used for work outside of work time, but the way that the interruptions were perceived were different for different people and the process of psychologically switching off from them manifested itself differently too. So, this chapter has assessed the mixed methods nature of the study and that Studies One and Two each made a unique contribution. The next and final chapter, will draw conclusions from the whole study and its implications.

Chapter Seven
Conclusions

7.1 Introduction

The overarching research question for this mixed methods study was: *'Do personality traits and ICT use influence how home-based teleworkers manage their work/nonwork boundary?'* This question was answered in two parts, firstly through quantitative Study One which consisted of three research questions that were explored through 13 hypotheses and secondly, in greater depth in Study Two, through three more research questions that were answered via the analysis of in-depth interview data. This section will now draw together the findings of the whole study and show the gaps in knowledge that this study has contributed to filling. This chapter is split into five sections, Section 7.2 will form conclusions about what this study tells about personality traits and boundary management. Section 7.3 will do the same for ICT use and both of these sections will explain how they add to knowledge and also what they might mean for organisations and individual teleworkers. Section 7.4 will then look at this research in a wider context and discuss some potential applications, before section 7.5 addresses the strengths and limitations of the study and potential future directions for research.

7.2 Personality Traits and Work/Nonwork Boundary Conclusions

Conscientiousness was negatively related to work/nonwork interruptions in this study, to a moderate extent. This adds to the literature because no known previous studies exist that have tested this before, so this study tells us that in this context, highly conscientious people may work in a slightly more segmented way, preferring to keep their work and non-work separate. As conscientiousness is related to being highly organised and disciplined (Costa & McCrae, 2006), they may complete their work within work time and keep restrictions on dealing with the opposite sphere when outside of it. So, this trait may be expressed through being conscientious not only toward work, but also toward non-work commitments too. This could bring with it some advantages, such that having separate and segmented time may help

in switching off and recovering from the effects of work (Derks & Bakker, 2014), which may be of benefit to the wellbeing of individual teleworkers and their families.

Dutifulness was related to having fewer interruptions from non-work into work which may also not have been surprising considering that dutiful people tend to be dependable and reliable (Costa & McRae, 1992 and Moon, 2001) and so may prefer to focus on their work out of a sense of duty and allow as few interruptions as possible. No known previous studies have explored this relationship either, so this adds something new to the literature that was not previously known. These findings suggest that dutifulness could be a positive trait in a teleworking context because organisations may be able to trust them to focus on work and fulfil necessary tasks with little supervision.

Anxious attachment styles are related to a tendency to ruminate and blur boundaries in a work setting (Canan Sumer & Knight, 2001). This anxious style and tendency to ruminate has been related to neuroticism (Noftle & Shaver, 2006), but no known literature exists that explores neuroticism and boundary blurring directly. This study has added to the literature by finding that neuroticism was related to a small degree to work-nonwork interruptions. This could be due to rumination or worry about work, which may then trigger the individual into completing more work or engaging in work activity to help ease the worry. Although there are clearly many other factors involved in boundary management and this was a small finding, high scorers in neuroticism might find segmenting their work and non-work lives a little more challenging. If they connect to work outside of work time regularly, this might interfere with the recovery process that they would need to maintain their wellbeing (Derks & Bakker, 2014 and Derks et al., 2014). So, neuroticism may be a more challenging trait in teleworking contexts for the teleworker and organisations may wish to provide additional support or training in these circumstances, to assist with developing resilience skills such as ways to wind down and switch off from work.

Impulsiveness involves finding it difficult to stop doing certain things, even though what is done may be detrimental to the person doing it (Costa & McCrae, 2006) and this often comes through motivation or desire to act on the impulse (Frijda, 2010). Therefore, it may not be surprising that this study found that the trait was linked to nonwork-work interruptions, possibly because in a home-based telework context, there could be so many potential distractions that might be difficult to resist, especially for high scorers in impulsiveness. This

adds to the current body of research because no known previous studies have assessed this trait in relation to the work/nonwork boundary. This trait may be important in remote working because of the number of potential distractions and lack of supervision may be challenging for high scorers in impulsiveness. Organisations may wish to bear this in mind and individuals might wish to develop well defined strategies to reduce impulsivity if it becomes particularly problematic.

This study also adds to the literature because it shows that the relationships between personality traits and boundary management is small, showing that although they play some role there is still a lot of unexplained variance that could be explored further. However, these small correlations were consistent with other personality studies finding similar sized correlations (Lane & Manner, 2011, Billieux et al., 2008 and Chittaranjan et al., 2011). One of the other factors that was found to be relevant in boundary management interruptions from work into non-work was that of work demands, which had a stronger effect than personality traits. This was also a significant theme in Study Two, where it was found that regardless of boundary management preferences, individuals still allowed work interruptions when their workload was high. These findings indicate that external factors such as work pressures may be more of a push factor for individuals to allow work interruptions than their traits or preferences. This is unsurprising considering that work demands can be a significant stressor (Edwards et al., 2008), so this responsiveness to the demands by allowing extra interruptions may be a way to help to reduce some of this pressure. However, there could also be an interaction between traits and work demands. The majority of people in this sample were highly conscientious and even though this was found to be negatively related to interruptions, if there are additional work demands beyond what are typical, highly conscientious people might then deal with those demands by working during non-work time, as they tend toward being responsible and thorough (Chittaranjan et al., 2013).

An unexpected finding in Study Two was the common thread found throughout the qualitative data of proactivity. This theme permeated throughout the template showing that boundary management was an active process and that to maintain boundaries required conscious and proactive effort, rather than something that was arrived at naturally. Proactivity was particularly strong in the segmenting strategies that were used, particularly with ICT's, because it seemed easier for ICT's to create the potential for integration without

the application of some kind of proactive strategy to prevent this. This adds to the literature because although it is known that ICT's can be a source of boundary blurring (Montgomery et al., 2009), it may be the case that proactivity is a key factor in preventing it where it is unwanted. As ICT'S are such a common and integrated part of peoples' lives, it might be that if handled passively they may naturally create interruptions and that to maintain a level of segmentation might require proactive strategies. Cunningham & De La Rosa (2008) found that proactive personality was negatively related to time based nonwork-work interruptions, possibly because of proactive management of the boundary prevented these interruptions. Further studies might show whether ICT based interruptions are also less frequent in either direction for proactive people.

This unexpected finding also highlighted the potential importance of proactive personality as an influential trait in home-based teleworking practices. Individuals with proactive personalities go about shaping and changing their environment (Bateman & Crant, 1993) and the remote working context of home-based teleworking is unique and requires concerted effort to arrange and set up (Hislop & Axtell, 2009). Individuals with proactive personalities may be particularly suited to this type of remote working context, because they will likely take the steps necessary to shape their own environment in a way that will achieve positive outcomes. They may also be able to handle some of the perceived negatives of remote working such as isolation (Mann & Holdsworth, 2003) and perceived loss of promotion prospects (Chen & Nath, 2008), by proactively shaping the environment to reduce the impact of these potential difficulties. This finding of the importance of proactivity adds to the literature because it may be a trait of particular relevance in this context and further research could investigate how influential it is in teleworking practices. Some studies have shown that proactive personality is more predictive than the FFM traits in some cases (Fuller & Marler, 2009) and as the FFM relationships were small in this study, further exploration of proactive personality may lead to understanding more about the importance of this trait in this context.

7.3 ICT Use Conclusions

The second part of the overarching research question was related to frequency of ICT use, specifically that of smartphones, tablets and laptops. The use of all three devices were found to influence the work-nonwork boundary because the more frequently they were used, the

more frequently work-nonwork interruptions occurred. This adds to the current literature that suggests that smartphones in particular can be a device that produces a blurring of the boundary between work and non-work (Montgomery et al., 2009). This study found that there was a stepped effect pattern that emerged and that smartphones were more highly correlated than tablets and tablets were more so than laptops to boundary interruptions. This finding suggests that it could be the portability of the ICT that makes it easier to connect to work, as suggested by Hislop et al., (2015) who found portability to be a key factor in smartphone and laptop use.

More specifically, this study went further by exploring the influence on the boundary of other types of ICT's beyond smartphones, which many previous studies have focussed on (Derks et al., 2016, Derks et al., 2015, Duxbury et al., 2014, Ragsdale & Hoover, 2016, Wajcman et al., 2008, Cavazotte et al., 2014, Richardson & Benbunan-Fich, 2011, MacCormick et al., 2012, Mazmanian et al., 2013, Tennakoon, et al., 2013 and Prasopoulou et al., 2006). A previous study by Chesley (2005) assessed mobile telephones and PC's and found that only mobile telephones influenced boundary blurring, but that PC use did not. This study adds to the literature, by its findings that smartphones, tablets and laptops all had this boundary blurring effect. As Chesley's study was 12 years ago and ICT's have changed substantially in terms of their portability, ease of use and functionality over this time, this study provides an updated exploration of ICT's currently used in the workplace. Overall, smartphones had a larger effect size than the tested personality traits indicating that their use may be more influential on boundary management than personality traits.

On closer inspection of ICT's and the work-nonwork boundary through the qualitative study, it was found that the way that people used their ICT's reflected their boundary management group and they used it in a way that brought about their boundary management preferences, which chimed with Derks et al. (2016) who also found that people reflected their preferences in their ICT use. Boundary interruptions via smartphone use did create conflict for some people, but it was not perceived as problematic by everyone and there seemed to be individuals who switched technology off to detach from work, others who kept it switched on and stayed psychologically switched on and others who seemed more able to psychologically detach. Qualitative Study One supported quantitative Study Two that smartphones provided the potential to boundary blur and that the use of laptops appeared to be less of an issue in

creating conflict as this only occurred for a few participants in the study. Organisations should be aware of the different influences that smartphones can have on different people and that they can be a source of conflict for some people more than others. This may be borne in mind when advising employees of expectations of smartphone use and how they respond to work-related communications.

Similarly, this study found that boundary management practices especially those related to ICT use, evolved over time and through a process of trial and error. More specifically, a process of social comparison through vicarious negative reinforcement (Bandura, 1971) seemed to be at play. Individuals, especially with more segmenting preferences learned from the behaviours of others with strongly work related integrating behaviours such that they did not wish to mimic their behaviours. They compared their own segmenting behaviours and traits as positive and those deemed as excessive, as negative. This was the opposite to other studies (Cavazotte et al., 2014 and Mazmanian et al., 2013) which found that excessive users justified their behaviour as being related to their positive traits such as being hard working. This adds to the literature by showing something of the process that goes into how interactions with smartphones and choices on how to use them are made.

Previous research looked at how personality traits influence ICT use, but most of these studies were related to either problematic use (Takao et al., 2009, Bianchi & Phillips 2005 and Jung-Yeon et al. 2014) or young people in an everyday context (Beranuy et al., 2009, Martinotti et al., 2011 and Lopez-Fernandez et al., 2013) but not in a work context. This study has added to the literature by finding that extraversion and gregariousness were both related to smartphone use in a work context. Previous studies showed mixed results as to whether extraversion was related to using ICT's and their functions (Landers & Lounsbury, 2006, Chittaranjan et al., 2013, Billieux, 2012 and Butt & Phillips, 2008). However, this study filled the work-related use gap, by showing that more highly extraverted and gregarious people may use these devices as a means to connect with others and keep in contact, especially in a remote working context where physical distance may make it harder to do so face to face. As extraversion and gregariousness did not play a role in boundary interruptions, it could be that some of this extra smartphone use can be accounted for by work related contacts or with colleagues.

Neuroticism was negatively related to smartphone use, which both supports and contradicts the mixed findings of non-work studies (Ehrenberg et al., 2008, Chittaranjan, et al., 2013, Butt & Phillips, 2008 and Lane & Manner, 2011). However, this finding adds to knowledge because previous studies have not considered non-problematic use in a work context. These findings might indicate that those scoring highly in neuroticism may use their smartphones less to avoid contacting others. This could be detrimental, especially in remote working because the smartphone is a key means of communication with managers and colleagues due to the physical distance. If issues are left undealt with, it could lead to longer term conflict and challenges that might otherwise have been solved through open communication. Organisations might bear this in mind and it may be helpful for managers to maintain some contact to ensure that any potential problems are aired quickly.

7.4 Research in the Wider Context

This section will now discuss some of the practical and organisational implications of this study, with regard to enhancing the management of home-based teleworkers. Organisations may wish to support teleworkers through providing support and training to develop their boundary management practices in a way that does not become problematic for them. Enabling employees to understand their own boundary management preferences through tests and to discover if their preferences are working well for them may be a good start with which to facilitate thoughtful and individualised working practices. Once individuals have understood their personal preferences and potential strengths and weaknesses of these, training could be given that shows the range of different strategies and techniques that are available in boundary management for teleworkers. Some strategies and techniques may not be familiar to some people, so increasing their repertoire may give them more options to try out and see if it works for them. Knowing a wide range of strategies that are available might be used to prevent boundary management problems that could develop without forethought and planning. This strategy may be used for new teleworkers and people about to start it as a means to avoid its potential pitfalls and to be well prepared before starting. However, for employees who are not new to telework, it may still be possible to use this strategy to help build the repertoire of boundary management techniques for more established workers. This strategy could then be tested by organisations to see if after this intervention it makes a

difference in productivity and job satisfaction to established workers and receive feedback from new workers about if and how it helped them in their new posts.

Organisations may wish to consider their policies on ICT use and how they communicate these policies to their employees, including how quickly communications are expected to be responded to. Expecting employees to be permanently available through electronic communications may not bother some employees with integrating preferences, as they do not seem to mind being available in this way. However, it is not yet known what the long-term consequences of this might be and whether this could potentially result in burnout at some point if this behaviour is engaged in very frequently. People with more segmenting preferences such as Strong Segmentors and Family Boundary Protectors may interpret some demands outside of work time negatively, particularly if they are not for urgent matters. Organisations might make their expectations clear to employees, for example to be clear if it is not expected that emails are responded to on evenings and weekends. This may help individuals to manage their boundaries without external pressures, or assumptions that they should respond out of hours when they may not need to. Feedback could then be gleaned from employees to see whether this clear communication has eased stress levels or changed the boundary management behaviours of the employees in response to it.

Individual teleworkers who are established, may have developed their own strategies through trial and error, but individuals who are yet to start, or who would like to telework may wish to consider their boundary management practices carefully and plan how they want to manage it rather, than just allowing it to happen. This could take place through exploring their own boundary management preferences and developing an understanding of the potential repertoire of techniques available. Teleworkers might also engage in proactive experimentation, by trying a range of boundary management techniques to find something that works for them. As boundary management is an ongoing process, it is not set in stone and can be adapted and changed as circumstances and lifestyles change. Perceiving it as something that can change and adapt may be positive for individuals to feel in control over these boundaries, which in turn is beneficial for wellbeing (Kossek et al., 2008). Individuals might also benefit from being proactive in their boundary management, to shape their environment and effect changes that they want to happen. This also goes for proactively managing their ICT's and learning what works and what does not work for them in how they

are managed. Without proactive management of these devices, they can be naturally intrusive and this may not be favoured by everyone.

7.5 Strengths, Limitations and Future Directions of the Whole Study

The limitations and future directions of Study One and Two were dealt with individually at the end of Chapters Four and Five and this section will assess the strengths, limitations and future directions of the entire study.

The use of an online survey is restrictive in the level of detail that can be gleaned from the participants although it is more easily generalisable than in-depth interviews which offer depth, but are limited in their generalisability (Howitt & Cramer, 2008). Using mixed methods facilitated the strengths of surveys and interviews as methods of data collection, so that this study could offer some generalisability and some depth (Teddlie & Tashakkori, 2010). Previous studies showed the importance of mixed methods in telework research, for example a mixed methods study by Hill, Miller, Weiner, & Colihan (1998) showed in the qualitative part that teleworkers perceived that they worked longer hours than non-teleworkers. Their follow up study found that when measured quantitatively this was not the case and they recommended that studies exploring telework should consider mixed methods. This mixed methods study found that the quantitative and qualitative data supported each other and the qualitative study went further by explaining the potential importance of another trait; that of proactive personality (Bateman & Crant, 1993), which was not addressed in Study One. Additional factors were also picked up in Study Two which developed a more in-depth understanding of the idiosyncrasies of ICT use amongst the boundary management groups, not only to discover the frequencies of their interruptions, but also the strategies that were used to manage these interruptions. So, a primary strength of this study was utilising a mixed methods approach to gain more from both methods (Bryman & Bell, 2011) and as Hill et al., (1998) suggested, using a mixed methods approach was able to clarify findings that may otherwise have been missed.

One limitation of this mixed methods study was that there were lots of ways that the study could have been conducted that may have changed its findings and outcomes. After Study

One was completed, it was decided to explore boundary management practices in more depth through grouping participants based on their survey scores. Similarly, as personality variables were found to have a small relationship to boundary interruptions, a decision was made to identify other factors that influenced boundary management emerging from the qualitative data. So, Study Two was shaped to explore these factors, but other points arising from Study One could have been explored instead. For example, extraversion was not significant in boundary interruptions in Study One, but a review of the literature suggests it may be a pertinent variable in telework, worth further investigation (Demerouti, Derks, Ten Brummelhuis & Bakker, 2014), participants could have been selected based on their extraversion scores to investigate the specifics of their boundary management practices related to this trait. Similarly, demographics were not found to be related to interruptions in Study One, so some demographic factors such as gender or age might have been explored through Study Two to explore if and how they influenced boundary management differences. Study One yielded many results that could have been explored qualitatively, but it was not possible to explore them all due to time limitations and the size of the interview participant pool. Had any of these potential factors been focussed on instead, it would likely have made for a very different study and future studies could address these gaps.

Both methods used in this study, the interviews and surveys involved reliance upon self-report. Self-report studies can be limited in that they can be subject to social desirability bias and exaggerated responses to maintain self-image (De Vellis, 2003). Although there is no suggestion that this was a significant problem in this study, a future study could look to using observational methods or actual recording of ICT use, for example through measuring the frequency of communications such as actual telephone calls used for work and non-work purposes. These methods would give a very accurate measure of actual ICT use rather than perceived use (Chittaranjan et al., 2013 and Chittaranjan et al., 2011). Similarly, Study Two contained 20 cases with four participants in each of the five groups. This was enough participants to pick up some differences in boundary management between the groups. However, a future study could extend the interviews to a larger sample and if this were the case, a wider range and more fine-grained set of differences in boundary management practices between the groups might emerge.

Another strength of this study is that it explored a range of segmenting and integrating boundary management styles in-depth, for example people who preferred segmentation in one sphere but not the other, such as Work Boundary Protectors and Family Boundary Protectors and individuals with moderate interruption behaviours such as Moderate Managers. Many recent studies (Piszczek, 2017, Derks et al., 2016 and Derks et al., 2015) related to boundary management and ICT use, have focussed primarily on segmenting and integrating preferences, but neglected other preferences that do not fit into this binary. Studies One and Two together made it possible to establish more than two boundary management preference groups and then to explore the nature of these groups. The five groups in this study were found to have very different ways of managing their boundaries. They also managed their ICT's especially smartphones differently and in a way that reflected their boundary preferences, showing that they were using it as a tool to contribute to managing their boundaries in a way that solidified their preference. So, although studies (Piszczek, 2017, Derks et al., 2016 and Derks et al., 2015) show that segmentation preference may influence the effects of smartphones on individuals, further studies might consider these additional differences in boundary management preferences because they influence the ways that individuals perceive ICT's and use them.

Both parts of the study were female dominated, as the survey consisted of 2/3 women and 12 out of 20 interview participants were female. This was an interesting point because some research has found that more men currently work from home than women (TUC, 2015 and ONS, 2014b). A future study might try to balance the number of male and female participants more equally, to be more inclusive of male home-based teleworkers and gain insight into their working practices and whether there are differences in these practices between men and women. The sample overall only contained 16% single people and this group had a higher than average drop-out rate, suggesting that they may have been discouraged from fully completing the survey. As approximately 35% of the population in the UK are single (ONS, 2017) it might be the case that this group were underrepresented in the sample as a whole. Future studies could explore a sample containing more single people, because there are indications that single people may experience more overload in managing their boundaries than couples (Moen & Yu, 2000). Bearing that in mind, this topic could be of importance to

this group and a study might look to how this drop-out rate could be reduced, to make exploring boundary management issues related to single people easier to achieve.

Ransome (2007) criticised the work-life balance literature for being largely focused on dual earner couples with young children. However, the use of internet survey methods in this study, facilitated attracting a wide range of ages and people at different stages of life. Therefore, the make-up of this sample was far more varied and the study achieved recruitment of a larger range of people than this typically focussed upon group claimed by Ransome. Previous studies have noted that the majority of work-nonwork studies have tended to focus on primarily white-collar workers (Hislop & Axtell, 2011 and Shorthose, 2004) and this study also has this limitation. The sample was made up of predominantly professional and managerial workers, but this might be expected considering the nature of significant ICT use in home-based teleworking contexts. It is not likely that a range of blue collar workers would be found in abundance in the type of work that this study explores.

Another area of potential further research is that of extraversion and telework. Extraversion was not found to be related to boundary interruptions in this study, but it may still be an interesting trait to explore further, because it has been identified as a potential significant trait in the relatively isolated remote working context (Demerouti et al., 2014). It may be the case that to get to the core of the issue of the functions of extraversion in a teleworking context, it may require a different kind of study. This study measured interruptions between spheres and assumed that high scorers in extraversion may gain social interaction from the non-work sphere. However, a diary study that measured actual interruptions and source of the interruptions might yield different results into how extraversion influences the boundaries of teleworkers.

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APPENDICES

Appendix One
Recruitment and Ethics

Appendix 1.1: The Study Website/Consent Form

http://loughboroughhomeworkingstudy.weebly.com/

Welcome!

What is the purpose of the study?

There is little research into the work-life balance of people who work from home. The purpose of this study is to explore the factors that influence how people who work from home manage their work-life balance. I am seeking adults aged 18 or over who work from home (part-time, full-time or some of the time) to take part.

This survey consists of a set of questions about working from home, your preferences, and some demographic questions. It should take around 15 minutes to complete.

Who is doing this research?

This research is being carried out through Loughborough University by Hannah Evans, a PhD student, working with Dr Donald Hislop and Dr Raymond Randall.

Will my taking part in this study be kept confidential?

Your participation in this study is anonymous and the information you share will be kept confidential and stored securely. It will only be available to the research team: Hannah Evans, Donald Hislop and Raymond Randall. If the research is published in a scientific journal, all respondents' data will remain anonymous.

Once I take part, can I change my mind?

Once you have started the survey, you can leave it at any time before completion, and your data will be automatically withdrawn. If you would like to withdraw after completion, please contact the main investigator Hannah Evans at h.evans@lboro.ac.uk before 31st August 2014, stating the time and date you completed the survey.

Further Information

If you would like further information about this project or have any queries, please contact the researcher Hannah Evans at the following e-mail address: h.evans@lboro.ac.uk

If you have any concerns or worries about this research or if you wish to register a complaint, please direct it to Mrs Zoe Stockdale, the Secretary for the University's Ethics Approvals (Human Participants) Sub-Committee: Mrs Z Stockdale, Research Office, Rutland Building, Loughborough University, Epinal Way, Loughborough, LE11 3TU. Tel: (01509) 222423. Email: Z.C.Stockdale@lboro.ac.uk

This study has received ethical clearance through the Loughborough University Research Ethics Policy.

If you would like to participate in this study, please click on the **'Start Survey'** button below**.**

Appendix 1.2: Interview Participant Information Sheet and Consent Form

Participant Information Sheet

The purpose of this page is to provide you with sufficient information so that you can give your informed consent to participate in this study. **This study has received ethical clearance through the Loughborough University Research Ethics Policy**.

What is the purpose of the study?

There is little research into the work-life balance of people who work from home. The purpose of this study is to explore the factors that influence how people who work from home manage their work-life balance.

The interview consists of a set of general questions and questions about how you work from home. The interview will be audio recorded and should last approximately 30-45 minutes.

Who is doing this research?

This research is being carried out through Loughborough University by Hannah Evans a PhD student, working with Dr Donald Hislop and Dr Raymond Randall.

Will my taking part in this study be kept confidential?

Your interview data will be stored securely and will only be available to the research team Hannah Evans, Donald Hislop and Raymond Randall. Your interview data will be given a

pseudonym and if the research is published in a scientific journal your identity will not be revealed.

Once I take part, can I change my mind?

Yes. Once you have started the interview, you can stop at any time before completion and if you would like to withdraw after completion, please contact Hannah Evans.

Questions and Consent

If you would like further information about this project or have any queries, please feel free to contact the researcher Hannah Evans at the following e-mail address: h.evans@lboro.ac.uk

If after reading the information about the interview process you would like to participate, please sign below and send your completed form to Hannah Evans at h.evans@lboro.ac.uk

Signed …….

Date ……

Further Information

If you have any concerns or worries concerning this research or if you wish to register a complaint, please direct it to Mrs Zoe Stockdale, the Secretary for the University's Ethics Approvals (Human Participants) Sub-Committee: Mrs Z Stockdale, Research Office, Rutland Building, Loughborough University, Epinal Way, Loughborough, LE11 3TU. Tel: (01509) 222423. Email: Z.C.Stockdale@lboro.ac.uk

Appendix Two
Measurement Scales and the Survey

Appendix 2.1: The WorkLife Indicator Scale

The original, full WorkLife Indicator Scale (Kossek et al., 2012) can be found below in the original order of presentation by the author.

1. I take care of personal or family needs during work
2. I respond to personal communications (e.g., emails, texts, and phone calls) during work
3. I do not think about my family, friends, or personal interests while working so I can focus
4. When I work from home, I handle personal or family responsibilities during work
5. I monitor personal-related communications (e.g., emails, texts, and phone calls) when I am working
6. I regularly continue working beyond my scheduled hours
7. I respond to work-related communications (e.g., emails, texts, and phone calls) during my personal time away from work
8. I work during my holidays
9. I allow work to interrupt me when I spend time with my family or friends
10. I usually bring work materials with me when I attend personal or family activities
11. I monitor work-related communications (e.g., emails, texts, and phone calls) during my personal time away from work
12. I control whether I am able to keep my work and personal life separate
13. I control whether I have clear boundaries between my work and personal life
14. I control whether I combine my work and personal life activities throughout the day
15. People see me as highly focused on my work
16. I invest a large part of myself in my work
17. People see me as highly focused on my family
18. I invest a large part of myself in my family life

Appendix 2.2: The TIPI Scale (Ten Item Personality Inventory)

Table 27: The TIPI Scale Items

		Disagree strongly	Disagree moderately	Disagree a little	Neither agree nor disagree	Agree a little	Agree moderately	Agree strongly
	I see myself as …							
1	Extroverted, enthusiastic	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2	Critical, quarrelsome	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3	Dependable, self-disciplined	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4	Anxious, easily upset	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5	Open to new experiences, complex	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6	Reserved, quiet	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7	Sympathetic, warm	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8	Disorganised, careless	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9	Calm, emotionally stable	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10	Conventional, uncreative	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Appendix 2.3: The Reliability and Validity of the TIPI Scale

The results of the reliability and validity testing of the TIPI scale, as tested by the authors Gosling et al., (2003) is shown in Table 28 below. There are indications that it has good convergent validity to the NEO PI-R Scale.

Table 28: The Reliability and Validity Testing of the TIPI Scale and Comparison to the BFI (Big-Five Inventory (by John & Srivastava, 1999) Scale

	Internal Consistency of TIPI Scale	**Convergent Validity of TIPI to BFI +**	**Test Re-test Reliability of TIPI ^**	**Test Re-test Reliability of BFI**	**Convergent Correlation of TIPI to NEO PI-R***	**Convergent Correlation of BFI to NEO PI-R***
Extraversion	.68	.87	.77	.82	.65	.76
Agreeableness	.40	.70	.71	.76	.59	.66
Conscientious-ness	.50	.75	.76	.76	.68	.70
Neuroticism	.73	.81	.70	.83	-.66	-.66
Openness	.45	.65	.62	.80	.56	.68
Mean Scores		.77	.72	.80		

(Gosling et al. 2003).

Appendix 2.4: The International Personality Inventory (IPIP) Scales

The IPIP Scale items for gregariousness, dutifulness and immoderation are shown in Table 29 below.

Table 29: The IPIP Scales of Gregariousness, Dutifulness and Immoderation, their Items and Selection Options

	Very inaccurate	Inaccurate	Neither accurate nor inaccurate	Accurate	Very accurate
Gregariousness					
Love large parties	1	2	3	4	5
Talk to a lot of different people at parties	1	2	3	4	5
Enjoy being part of a group	1	2	3	4	5
Avoid crowds	1	2	3	4	5
Involve others in what I am doing	1	2	3	4	5
Love surprise parties	1	2	3	4	5
Prefer to be alone	1	2	3	4	5
Want to be left alone	1	2	3	4	5
Don't like crowded events	1	2	3	4	5
Seek quiet	1	2	3	4	5
Dutifulness					
Try to follow the rules	1	2	3	4	5
Keep my promises	1	2	3	4	5
Misrepresent the facts	1	2	3	4	5
Do the opposite of what is asked	1	2	3	4	5
Get others to do my duties	1	2	3	4	5
Pay my bills on time	1	2	3	4	5
Break my promises	1	2	3	4	5
Listen to my conscience	1	2	3	4	5
Break rules	1	2	3	4	5
Tell the truth	1	2	3	4	5
Immoderation					
Often eat too much	1	2	3	4	5
Never spend excessively (splurge)	1	2	3	4	5
Never spend more than I can afford	1	2	3	4	5
Am able to control my cravings	1	2	3	4	5
Easily resist temptations	1	2	3	4	5
Rarely overindulge	1	2	3	4	5
Love to eat	1	2	3	4	5
Don't know why I do some of the things I do	1	2	3	4	5
Do things I later regret	1	2	3	4	5
Go on binges	1	2	3	4	5

Appendix 2.5: The Psychometric Properties of the IPIP Scales

The results of the reliability and validity testing of the IPIP scales, as tested by the author Goldberg (1999) is shown below in Table 30, indicating that they have good convergent validity to the NEO PI-R Scale.

Table 30: The Psychometric Properties of the IPIP Scales of Gregariousness, Dutifulness and Immoderation in Comparison to the Original NEO PI-R Measure of the Same Traits

	Mean Item *r* IPIP	**Mean Item *r* NEO PI-R**	**Alpha Coefficient IPIP**	**Alpha Coefficient NEO PI-R**	**Correlation IPIP to NEO PI-R**
Gregariousness	.28	.34	.79	.80	.78
Dutifulness	.20	.23	.71	.67	.60
Impulsiveness	.25	.24	.77	.72	.73

(Based on Goldberg, 1999).

Appendix 2.6: The Management Standards Indicator Tool

The MSIT, is a tool that is used to measure stress and working conditions, in particular conditions that can lead to the experience of stress. The tool contains 35 items in total, with 7 subscales measuring Demands, Control, Managerial Support, Peer Support, Relationships, Role and Change. All of these factors are related to the development of stress (Edwards et al., 2008).

In relation to the current study; each subscale was reviewed and the item with the highest Alpha Coefficient from each subscale was chosen to represent each subscale as a single item measure. It was not possible to include all 35 items due to the length of the whole survey and potential fatigue effects which may have reduced completion rates (Sax et al. 2003, Porter, 2004). The following list highlights the Item number (from the original scale) that was chosen for each subscale and its Alpha Coefficient in brackets: Demands Item 22 (.84), Managerial Support Item 35 (.84), Peer Support Item 24 (.82), Relationships Item 34 (.71), Role Item 11 (.80), and Change Item 32 (.76) (Edwards et al., 2008). Control was not included due to there already being a measure for control in the WorkLife Indicator Scale (Kossek et al., 2012). The five point Likert Scale from the original was used for participants to respond to, with Items 11 and 22 options ranging from 1 (Never) to 5 (Always) and Items 24, 32, 34 and 35 from 1 (Strongly Disagree) to 5 (Strongly Agree).

The entire Management Standards Indicator Tool is stated below. The items used in the study are highlighted in bold.

Part 1

1. I am clear what is expected of me at work
2. I can decide when to take a break
3. Different groups at work demand things from me that are hard to combine
4. I know how to go about getting my job done
5. I am subject to personal harassment in the form of unkind words or behaviour
6. I have unachievable deadlines
7. If work gets difficult, my colleagues will help me
8. I am given supportive feedback on the work I do
9. I have to work very intensively
10. I have a say in my own work speed
11. **I am clear what my duties and responsibilities are**
12. I have to neglect some tasks because I have too much to do

13. I am clear about the goals and objectives for my department
14. There is friction or anger between colleagues
15. I have a choice in deciding how I do my work
16. I am unable to take sufficient breaks
17. I understand how my work fits into the overall aim of the organisation
18. I am pressured to work long hours
19. I have a choice in deciding what I do at work
20. I have to work very fast
21. I am subject to bullying at work
22. **I have unrealistic time pressures**
23. I can rely on my line manager to help me out with a work problem

Response options for items 1-23:

1. **Never 2. Seldom 3. Sometimes 4. Often 5. Always**

Part 2

24. **I get help and support I need from colleagues**
25. I have some say over the way I work
26. I have sufficient opportunities to question managers about change at work
27. I receive the respect at work I deserve from my colleagues
28. Staff are always consulted about change at work
29. I can talk to my line manager about something that has upset or annoyed me about work
30. My working time can be flexible
31. My colleagues are willing to listen to my work-related problems
32. **When changes are made at work, I am clear how they will work out in practice**
33. I am supported through emotionally demanding work
34. **Relationships at work are strained**
35. **My line manager encourages me at work**

Response options for items 24-35:

1. **Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree**

Appendix 2.7: Piloting Procedure and Feedback From the Pilot Study

This section details the piloting procedure of the quantitative study and the adjustments made based on feedback from the pilot to create the final survey.

Findings from the Pilot Study Part 1(a)

Based on feedback from the pilot study, general changes and improvements were made to make the survey easier to complete and improve usability. The following list details the changes made to the pilot survey.

1. Changes were made to the website to stating how long the survey would take so that all the information on the webpage matched with the information on the information sheet.
2. The size of the 'Yes I accept' button (to participate in the survey) was increased due to feedback that it was too small.
3. The consent form was placed onto the first page of the survey rather than the webpage, because it was possible that some participants could go straight through to the survey without giving consent to participate if it was placed on the website.
4. A page heading on each page was included to make it clear what the questions on the page were related to.
5. A short introductory section for each new set of questions was included to introduce the section and assist the participant to be in the frame of mind for answering that specific set of questions.
6. The instructions for answering the personality questions were changed to make it clearer that they were to be answered in general, not in relation to how the person is while they are at work.
7. The personality items were put in mixed order to prevent priming the participants and to reduce the repetitiveness where all questions measuring the same trait were next to each other. The narrow trait scales were mixed together and interwoven.

Item specific changes were made based on feedback from the survey:

1. Relationship categories were changed to capture the current situation of the person, for example, if a person is divorced, but was in another relationship either cohabiting or non-cohabiting, their circumstances would be very different from a divorced person who was single, so selecting 'divorced' for either of these participants would not be very meaningful. The categories chosen were designed to capture the relationship situation of the person at the time of completing the survey.
2. An item was added to distinguish between UK and Non-UK participants. The wide recruitment of the survey could lead to Non-UK participants completing the survey and there could be differences between UK and Non-UK participants that may need to be checked for.
3. On the original TIPI scale, the response options were written in the following order: '*disagree strongly*' with disagree coming first, in the WorkLife Indicator it is the opposite for example: '*strongly disagree'*. To create uniformity between the scales and make it easier for the participant to follow, the TIPI options were changed to '*strongly disagree'*.
4. A job performance measure was added to the survey.
5. An additional 'other' option was added to gender (Item 1).
6. In relation to establishing the working hours of participants (Items 7-11), feedback was given that the instructions were not clear and some people typed words such as 'it depends' which would be unhelpful when analysing the data. This was changed to a drop-down menu of numbers, where a number of hours could be selected. The words 'On average' were highlighted to draw attention to it being a typical or average week.
7. Item 12 exploring where participants worked while they were at home was changed to allow people to select more than one answer, for example; lounge/bedroom. Participants may move around and not just work in one space.
8. Clarification was included in the instructions that the questions on technology use were in relation to work use (Item 16).
9. No one in the pilot study used a PDA, so this option was excluded from the section on technology as these were likely defunct.

10. A drop-down menu was included for all answers requiring a numerical or categorical response, rather than a text box, to prevent participants from writing words that might be difficult to code.
11. After receiving feedback that some of the questions seemed geared towards people with young children, a few of the items were reworded to be more neutral. '*Feel torn between doing my best for my work and the best for my family*' was changed to 'Feel torn between doing my best for my work and the best for my personal life' as 'Personal life' is more inclusive of anyone regardless of their lifestyle. In the WorkLife Indicator (Kossek et al., 2012) only the items measuring identity were similar: '*People see me as highly focussed on my family*' and '*I invest a large part of myself in my family life*' could be construed in a similar way. These were adapted to: '*People see me as highly focussed on my personal life/family'* and '*I invest a large part of myself in my personal/family life'*.

Some suggestions for adaptations were made and these were not changed for the following reasons:

1. A suggestion was made that the demographic variables could be placed at the end of the survey rather than at the beginning because it might deter some people from answering if these questions are right at the beginning. It was decided to keep the demographic variables at the beginning of the survey, as it could be construed as dishonest by some people if they completed the survey and then were asked demographics at the end.
2. Suggestions were made in relation to the response options on some of the scales. It was mentioned that the central response on the Likert Scales would be better if they were changed to 'Neutral' rather than 'Neither agree nor disagree'. It was mentioned that the WorkLife section might be better with a 'never' to 'always' (frequencies) scale rather than the 'agree' to 'disagree' scale. 'Always' is an option on Items 14-15 and it was suggested that this may be too strong a response. However, considering that these were established measures which were robustly tested with their response options, a decision was made not to make these changes as it could affect the validity of the scales.

Findings from the Pilot Study Part 1(b).

After launching the pilot survey using the BOS platform, other potential survey platforms were considered. There were a few weaknesses with BOS and the best of the alternatives was 'Smartsurvey' comparing favourably with BOS. The main advantages of Smartsurvey in comparison to BOS were:

1. It had a selection of different colours, fonts and more control over the interface to personalise the survey, which was not available on BOS
2. It had a numerical free text box option not available on BOS
3. It had an inbuilt mechanism to prevent people from completing the survey more than once which was not available on BOS
4. Smartsurvey had a mechanism with which to trace which source the respondent came from, for example Twitter, Facebook or LinkedIn and BOS did not have such a mechanism.
5. It allowed for a printable version of the survey that might have proved to be useful and helped to boost responses in the event of a low response rate.
6. The mobile phone version of the survey on BOS was extremely difficult to complete but on Smartsurvey it was easier. Smartsurvey allowed for more people to be able to complete the survey by mobile telephone, potentially generating more responses.
7. With BOS it was not possible to change the width of the answer rows on the grid style questions (such as the WorkLife Indicator and Personality items). The numbered response options were not clearly lined up with the headings above each row, meaning that it could be difficult for participants to answer, or they could answer accidentally in the wrong boxes. Smartsurvey was more clearly structured and the grid style questions were of equal length for each answer.
8. Both had the potential to export data directly into Excel where it could be transferred into SPSS and both enabled a 'lboro.ac.uk' web address, which added to the credibility of the study.

Findings from the Pilot Study Part 2. Testing the New Survey on the SmartSurvey Platform

Based on some of the weaknesses experienced with BOS, an alternative survey was created using the Smartsurvey platform. The new survey incorporated the changes stated above and this was tested prior to the final launch of the survey. One participant answered the survey again and gave feedback throughout at each stage of the survey. Changes were made based on the feedback given, including using a clearer and larger font for subheadings, the completion bar at the top of each page was removed due to it not accurately reflecting the number of questions left to answer. The completion bar was based on a percentage of the number of pages rather than the number of questions, so it would appear to the participant that they had more to answer than they actually did and this might have increased the non-completion rate. The participant stated that they preferred the option of 'personal' and 'personal/family' rather than 'family' in relation to the items stated above in the section 'Findings from Pilot Study Part 1(a)'. After the survey was finalised it was tested on different browsers, different types of technology such as laptops, smartphones and tablets and from Apple and Android products to check that it would be accessible to a wide variety of users.

Appendix 2.8: The Full Survey

The full survey that was used to collect data is shown below.

Work Life Balance in Home Workers Study

1. Consent

If you would like to take part in this study, please read the statements below and if you agree with them, tick the boxes corresponding to the statements. Then click on the 'Next Page' button which will take you through to the survey. *

- [ ] I have read and understood the information provided above
- [ ] I have been given contact details to ask questions if I wish to
- [ ] I understand that my participation is voluntary, and I am free to withdraw at any time without explanation or consequence
- [ ] I understand that my participation is anonymous, and my data is confidential and will be kept securely
- [ ] I agree to take part in this study

2. About You

These questions ask about you and your situation.

Are you:

- [ ] Female
- [ ] Male
- [ ] Other (please specify):

What is your age group?

- [ ] 18-25
- [ ] 26-30
- [ ] 31-39
- [ ] 40-49
- [ ] 50-59
- [ ] 60-69
- [ ] 70 or over

Do you live in the UK?

- [ ] Yes
- [ ] No

What is your relationship status?

- [ ] Single
- [ ] In a relationship but living separately
- [ ] Married or domestic partnership
- [ ] Other (please specify):

How many children under 18 are you a parent/carer for?

- [ ] 0

- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5
- [ ] 6 or more

3. About Your Work

These questions ask about your work situation.

What is your job title?

What industry do you work in?

How long have you been doing some or all of your work at home?

Years

Months

When working from home are you:

- [ ] Self-Employed
- [ ] An Employee

☐ Other (please specify):

To what extent do your working hours vary from week to week?

☐ Never

☐ Rarely

☐ Sometimes

☐ Often

☐ Always

4. About Your Work

These questions ask about your work situation.

On average, roughly how many hours per week in total do you work? (This includes work from home, other sites, work while travelling etc)

☐ 1

☐ 2

☐ 3

☐ 4

through to…

☐ More than 70

On average, roughly how many hours do you typically work from home each week?

- [ ] 0
- [ ] 1
- [ ] 2
- [ ] 3

through to …

- [ ] More than 70

How many of these hours you spend working at home, would you consider to be overtime, or extra hours required to get your work done?

- [ ] 0
- [ ] 1
- [ ] 2
- [ ] 3

through to …

- [ ] More than 70

Where do you work when you are at home? (Please select all that apply)

- [ ] In the kitchen/dining area
- [ ] Bedroom
- [ ] Lounge area
- [ ] Garden/Outbuilding
- [ ] Dedicated office/separate work space
- [ ] Other (please specify):

While I am working from home:

	Never	Rarely	Sometimes	Often	Always
I am alone	☐	☐	☐	☐	☐
There are ADULTS that I have caring responsibilities for at home	☐	☐	☐	☐	☐
There are CHILDREN that I have caring responsibilities for at home	☐	☐	☐	☐	☐
Other PEOPLE are at home while I'm working, but they are not necessarily dependent on me caring for them	☐	☐	☐	☐	☐
I structure my work patterns around my caring responsibilities	☐	☐	☐	☐	☐

5. Technology and Communication

These questions ask you about the technology and communication methods you use at work.

To what extent do you use these technologies for work?

	Never	Rarely	Sometimes	Often	Always
Laptop	☐	☐	☐	☐	☐
Netbook/Notebook	☐	☐	☐	☐	☐
PC (Desktop Computer)	☐	☐	☐	☐	☐
Tablet/iPad	☐	☐	☐	☐	☐
Smartphone	☐	☐	☐	☐	☐

	Never	Rarely	Sometimes	Often	Always
Basic Mobile Telephone (without computing capability)	☐	☐	☐	☐	☐
Landline Telephone	☐	☐	☐	☐	☐
Smartwatch	☐	☐	☐	☐	☐

To what extent do you use these means of communication for work?

	Never	Rarely	Sometimes	Often	Always
Internet	☐	☐	☐	☐	☐
E-mail	☐	☐	☐	☐	☐
Video Conference (Skype etc)	☐	☐	☐	☐	☐
Text Messaging (via phone)	☐	☐	☐	☐	☐
Telephone calls	☐	☐	☐	☐	☐
Instant Messaging	☐	☐	☐	☐	☐
Applications (on Smart Phone/iPad etc)	☐	☐	☐	☐	☐
Social Media (Twitter, Linkedin, Facebook etc)	☐	☐	☐	☐	☐

6. Work-Life Balance

These questions ask about your work-life balance.

Below is a list of phrases that describe how people balance their work and personal lives. Please read each statement carefully and then select the button that most closely describes how much you agree or disagree with each statement in relation to how you work from home.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I take care of personal or family needs during work	☐	☐	☐	☐	☐
I regularly continue working beyond my scheduled hours	☐	☐	☐	☐	☐
I invest a large part of myself in my family/personal life	☐	☐	☐	☐	☐
People see me as highly focused on my work	☐	☐	☐	☐	☐
I control whether I am able to keep my work and personal life separate	☐	☐	☐	☐	☐
I respond to personal communications (e.g., emails, texts and phone calls) during work	☐	☐	☐	☐	☐
I invest a large part of myself in my work	☐	☐	☐	☐	☐
I work during my holidays	☐	☐	☐	☐	☐
I control whether I have clear boundaries between my work and personal life	☐	☐	☐	☐	☐
I do not think about my family, friends, or personal interests while working so I can focus	☐	☐	☐	☐	☐
I monitor work-related communications (e.g., emails, texts and phone calls) during my	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
personal time away from work					

7. Work-Life Balance

These questions ask about your work-life balance.

Below is a list of phrases that describe how people balance their work and personal lives. Please read each statement carefully and then select the button that most closely describes how much you agree or disagree with each statement in relation to how you work from home.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I usually bring work materials with me when I attend personal or family activities	☐	☐	☐	☐	☐
I control whether I combine my work and personal life activities throughout the day	☐	☐	☐	☐	☐
When I work from home, I handle personal or family responsibilities during work	☐	☐	☐	☐	☐
I allow work to interrupt me when I spend time with my family or friends	☐	☐	☐	☐	☐
I monitor personal-related communications (e.g., emails, texts, and phone calls) when I am working	☐	☐	☐	☐	☐
I respond to work-related communications (e.g.,	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
emails, texts, and phone calls) during my personal time away from work					
People see me as highly focused on my family/personal life	☐	☐	☐	☐	☐
I would rather work from home than elsewhere	☐	☐	☐	☐	☐
Overall I am satisfied with my job	☐	☐	☐	☐	☐
I set myself specific working hours when working from home	☐	☐	☐	☐	☐
Opportunities for promotion are important to me	☐	☐	☐	☐	☐

8. Work-Life Balance

These questions ask about your work-life balance.

Below is a list of phrases that describe how people experience their work. Please read each statement carefully and then select the button that most closely describes how much you agree or disagree with each statement in relation to how you work from home.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
My line manager encourages me at work	☐	☐	☐	☐	☐	☐
I get help and support I need from colleagues	☐	☐	☐	☐	☐	☐
Relationships at work are strained	☐	☐	☐	☐	☐	☐
When changes are made at work, I am	☐	☐	☐	☐	☐	☐

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
clear how they will work out in practice						

Below is a list of phrases describing how people experience their work. Please read each statement carefully and then select the button that corresponds to how you feel about your work from home.

	Never	Rarely	Sometimes	Often	Always
Phone others when I feel lonely	☐	☐	☐	☐	☐
Find it difficult to stop checking my electronic devices for work communications	☐	☐	☐	☐	☐
Feel bothered and sidetracked by interruptions from messages, e-mails and phone calls	☐	☐	☐	☐	☐
Use social media sites for personal use while I'm working	☐	☐	☐	☐	☐
Feel torn between doing the best for my work and best for my home life	☐	☐	☐	☐	☐
Get easily distracted onto other tasks	☐	☐	☐	☐	☐
I have unrealistic time pressures	☐	☐	☐	☐	☐
I am clear what my duties and responsibilities are	☐	☐	☐	☐	☐

How well do you think you have performed in your job recently?

- ☐ Extremely poor
- ☐ Below average
- ☐ Average
- ☐ Above average
- ☐ Excellent

9. Your Personal Preferences

This section will focus on how you are in general, not specifically when you are at work

Here are a number of traits that may or may not apply to you. Please select the button that indicates the extent to which you think that statement applies to you. You should rate the extent to which the pair of traits applies to you, even if one characteristic applies more strongly than the other.

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
Extroverted, enthusiastic	☐	☐	☐	☐	☐	☐	☐
Critical, quarrelsome	☐	☐	☐	☐	☐	☐	☐
Dependable, self-disciplined	☐	☐	☐	☐	☐	☐	☐
Anxious, easily upset	☐	☐	☐	☐	☐	☐	☐
Open to new experiences, complex	☐	☐	☐	☐	☐	☐	☐
Reserved, quiet	☐	☐	☐	☐	☐	☐	☐
Sympathetic, warm	☐	☐	☐	☐	☐	☐	☐
Disorganised, careless	☐	☐	☐	☐	☐	☐	☐
Calm, emotionally stable	☐	☐	☐	☐	☐	☐	☐

	Strongly Disagree	Moderately Disagree	Disagree a Little	Neither Agree nor Disagree	Agree a Little	Moderately Agree	Strongly Agree
Conventional, uncreative	☐	☐	☐	☐	☐	☐	☐

10. Your Personal Preferences

This section will focus on how you are in general, not specifically when you are at work

Please read the following statements carefully and select the button that corresponds to how accurately you think each statement describes you. Describe yourself as you generally are now, not as you wish to be in future and in relation to other people you know of the same gender and roughly the same age.

	Very Inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
Love large parties	☐	☐	☐	☐	☐
Try to follow the rules	☐	☐	☐	☐	☐
Do things I later regret	☐	☐	☐	☐	☐
Seek quiet	☐	☐	☐	☐	☐
Break my promises	☐	☐	☐	☐	☐
Go on binges	☐	☐	☐	☐	☐
Enjoy being part of a group	☐	☐	☐	☐	☐
Pay my bills on time	☐	☐	☐	☐	☐
Love to eat	☐	☐	☐	☐	☐
Involve others in what I am doing	☐	☐	☐	☐	☐
Tell the truth	☐	☐	☐	☐	☐
Rarely overindulge	☐	☐	☐	☐	☐

	Very Inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
Love surprise parties	☐	☐	☐	☐	☐
Listen to my conscience	☐	☐	☐	☐	☐
Never spend more than I can afford	☐	☐	☐	☐	☐

11. Your Personal Preferences - Nearly Finished!

This section will focus on how you are in general, not specifically when you are at work

Please read the following statements carefully and select the button that corresponds to how accurately you think each statement describes you. Describe yourself as you generally are now, not as you wish to be in future and in relation to other people you know of the same gender and roughly the same age.

	Very Inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
Prefer to be alone	☐	☐	☐	☐	☐
Break rules	☐	☐	☐	☐	☐
Am able to control my cravings	☐	☐	☐	☐	☐
Want to be left alone	☐	☐	☐	☐	☐
Keep my promises	☐	☐	☐	☐	☐
Easily resist temptations	☐	☐	☐	☐	☐
Don't like crowded events	☐	☐	☐	☐	☐
Get others to do my duties	☐	☐	☐	☐	☐
Never spend excessively (splurge)	☐	☐	☐	☐	☐

	Very Inaccurate	Moderately Inaccurate	Neither Accurate nor Inaccurate	Moderately Accurate	Very Accurate
Talk to a lot of different people at parties	☐	☐	☐	☐	☐
Do the opposite of what is asked	☐	☐	☐	☐	☐
Often eat too much	☐	☐	☐	☐	☐
Avoid crowds	☐	☐	☐	☐	☐
Misrepresent the facts	☐	☐	☐	☐	☐
Don't know why I do some of the things I do	☐	☐	☐	☐	☐

12. Finishing the Survey

Is there anything else you would like to add?

Where did you hear about this survey?

- ☐ Social Media website
- ☐ Direct e-mail
- ☐ Homeworking group/website
- ☐ Workplace
- ☐ Other (please specify):

Would you like to participate in an interview about homeworking? *

- [ ] Yes
- [ ] No

Please leave your email address below if you would like to participate in an interview about homeworking. Your e-mail address will be private, kept securely, and not shared with anyone else for any other purpose.

Would you like a debrief report on this study? *

- [ ] Yes
- [ ] No

If you would like a debrief report on this study, please write your e-mail address below (your e-mail address will be kept securely, separately from your data and not shared with anyone else for any other purpose). If not, please click on the 'Finish Survey' button below. Thank you!

Appendix Three
Statistical Tables and Analytical Information

The appendices in this section will present the statistical tables pertinent to the main tested variables and additional information related to the analysis.

Appendix 3:1 Table Showing Descriptive Statistics and Skew of the Personality and Work/Nonwork Variables

The descriptive statistics for the tested personality variables are detailed in Table 31 below.

Table 31: Totals, Means, Standard Deviations, Minimum and Maximum Values and Skew for the Personality and Interruptions Variables

	n	***M***	***SD***	**Min**	**Max**	**Skew**
Extraversion	386	8.82	3.15	2	14	-.22
Conscientiousness	382	11.88	2.17	5	14	-.97
Neuroticism	387	5.96	2.76	2	14	.39
Gregariousness	370	29.42	7.69	11	49	.03
Dutifulness	370	42.38	4.59	27	50	-.54
Impulsiveness	372	26.44	6.45	10	46	.22
Nonwork-work interruptions	377	18.00	3.37	8	25	-.59
Work-nonwork interruptions	375	19.31	5.10	7	30	-.26

Appendix 3.2: Table Showing Descriptive Statistics and Skew of the ICT Variables

Table 32: Totals, Means, Standard Deviations, Minimum and Maximum Values and Skew for the ICT Variables

	n	*M*	SD	Min	Max	Skew
Laptop	386	4.29	1.20	1	5	-1.70
Tablet	358	2.19	1.34	1	5	.66
Smartphone	371	3.41	1.42	1	5	-.51

Appendix 3.3: The Procedure and Results for Transforming the Skewed Variables

Transformations of the data were run to attempt to reduce the skew of the skewed variables. The following skewed personality variables were transformed: conscientiousness, neuroticism, extraversion, dutifulness and impulsiveness and the work/nonwork boundary variables of Work-nonwork interruptions and Nonwork-work interruptions. The following frequency of technology use variables were skewed and were also transformed: laptop, tablet and smartphone. To transform the variables, histograms for each variable were compared to the shape of the distributions diagram in Tabachnik and Fidell (1996, 82) to establish which transformation formula to apply. The value of each skew was defined as: < 0.2 less than moderate, 0.2-0.49 moderate, 0.5-0.89 substantial and > 0.9 severe based on Tabachnik and Fidell (1996). The variables were transformed and tested and the results are reported below.

Personality and Work/Nonwork Variables

Neuroticism and Impulsiveness both displayed a moderate positive skew, SQRT(x) was used to calculate the transformed variables. The skew was reduced to normal in both variables after transformation. Extraversion and Work-nonwork interruptions were moderately, negatively skewed, SQRT(k-x) was used to calculate the transformed variable. Dutifulness and

Nonwork-Work interruptions had substantial negative skew, LG10(k-x) was used to calculate the transformed variable. In all four variables, the skew was increased after transformation of the data. Conscientiousness had a severe negative skew, 1/(k-x) was used to calculate the transformed variable and the skew was increased. LG10(k-x) (the formula for a substantial rather than severe negative skew was also applied) and this resulted in a substantial reduction in skew.

Technology Variables

Laptop usage had a severe negative skew, 1/(k-x) was used to calculate the transformed variable. Smartphone had a negative substantial skew, LG10(k-x) was used to calculate the transformed variable. The skew for each was reduced substantially but the variables were still skewed after transformation. Table 33 below presents the before and after skew of all of the transformed variables.

Table 33: Comparison of the Skew of the Original and the Transformed Variables

Variable	Skew of Variable	Skew of Transformed Variable
Conscientiousness	-.97	2.11
Neuroticism	.39	-.01
Extraversion	-.22	-.26
Dutifulness	-.54	-.97
Impulsiveness	.22	-.09
Nonwork-Work	-.59	-1.29
Work-Nonwork	-.26	-.37
Laptop	-1.70	-.83
Tablet	.66	.28
Smartphone	-.51	-.11

Testing the Transformed Data

Pearson correlations were run between the transformed variables and compared to the correlations between the original variables. The results were mixed with some variables correlating similarly to the originals. Other variables correlated in ways that might not be expected such as dutifulness positively correlating to impulsiveness and neuroticism positively correlating to extroversion which is the opposite from the original data. Overall, the correlations for the transformed variables were no more significant than the original variables, but there were some correlations that were counterintuitive in the transformed variables. Transforming data can lead to empirical repercussions that may overshadow the advantages (Field, 2013), so the rest of the data analysis was performed with the original variables, not the transformed ones.

Appendix 3.4: Grouping of Independent Variables

The independent variables were reformulated into 3 categories, each based on the *SD* of their *M*. Table 34 below shows how the variables were categorised and the size of the categorised groups.

Table 34: The Grouped Independent Variables based on the Standard Deviation of their Means

Independent Variable	Low Category Score Range	*n*=	Medium Category Score Range	*n*=	High Category Score Range	*n*=
Conscientiousness	2-9	64	10-13	197	14	121
Dutifulness	5-37	52	38-46	242	47-50	75
Neuroticism	2-3	86	4-8	223	9-14	78
Impulsiveness	10-20	72	21-32	232	33-50	68
Extraversion	2-6	99	7-10	151	11-14	136
Gregariousness	11-21	51	22-37	238	38-50	81
Laptop	1-3	72	4	62	5	252
Tablet	1	170	2-3	108	4-5	80
Smartphone	1	65	2-4	200	5	106

Appendix 3:5: Correlation Matrix showing the Correlations Between the Personality, ICT and Work/Nonwork Interruptions Variables

Table 35: Correlation Matrix showing the Correlations Between the Personality, Interruptions and ICT Variables *N* = 391

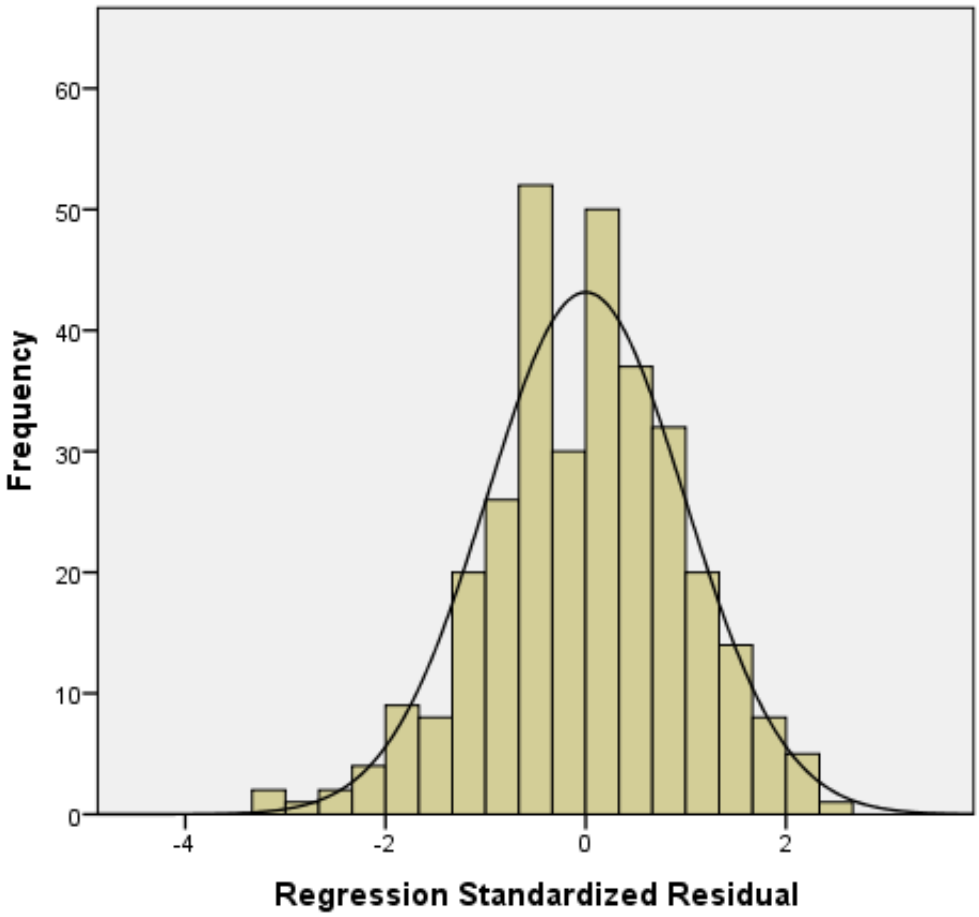
	1	2	3	4	5	6	7	8	9	10	11
1. Extraversion	**.62**	.08	-.17	.62	-.01	.10	.02	.02	.12*	.06	.16*
2. Conscientiousness		**.53**	-.32	-.01	.49	-.43	-.16*	-.13*	.05	-.02	-.01
3. Neuroticism			**.54**	-.11	-.15	.28	.14*	.09	-.08	-.05	-.19^
4. Gregariousness				**.87**	.03	.07	-.01	.09	.04	.06	.20^
5. Dutifulness					**.73**	-.40	-.09	-.11*	-.01	-.02	-.05
6. Impulsiveness						**.78**	.08	.12*	.01	-.01	.04
7. Work-Nonwork							**.83**	.26^	.11*	.27^	.31^
8. Nonwork-Work								**.73**	-	-	-
9. Laptop									-	.11	.26
10. Tablet										-	.34
11. Smartphone											-

* Significant at $p < .05$. ^ Significant at $p < .001$ level (reporting of relevant variables tested for the hypotheses).

Correlation Matrix based on two-tailed Pearson correlations.

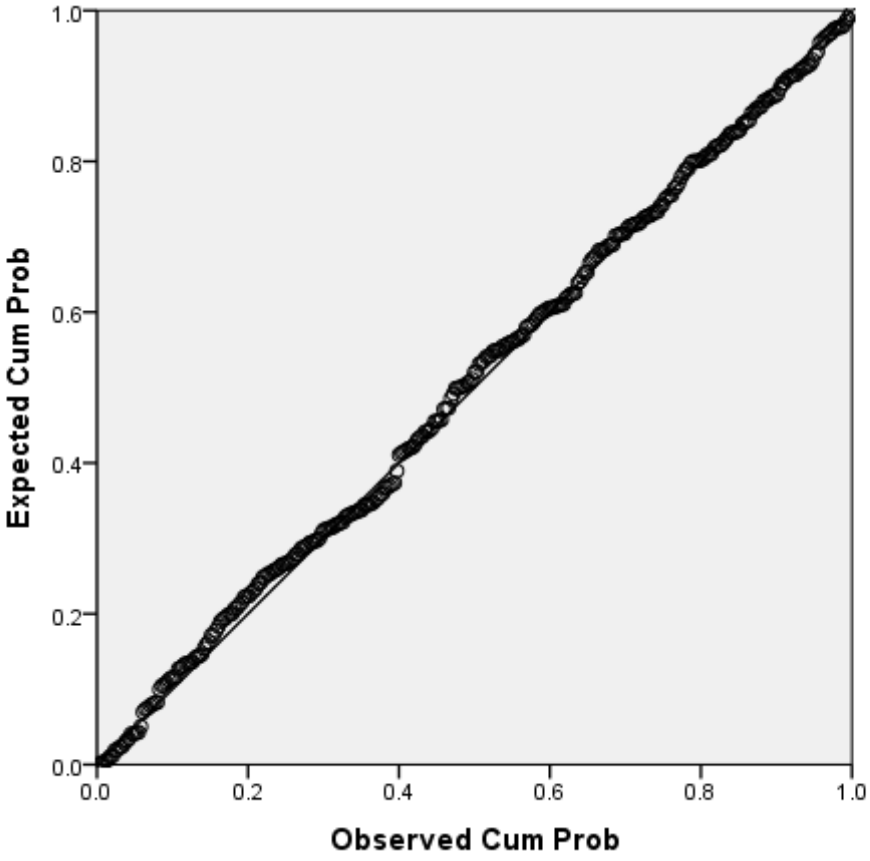
Appendix 3.6 Figures Related to the Hierarchical Linear Multiple Regression Analysis

Figure 7: Histogram Showing the Distribution of Standardised Residuals in the Dependent Variable of Work-Nonwork Interruptions



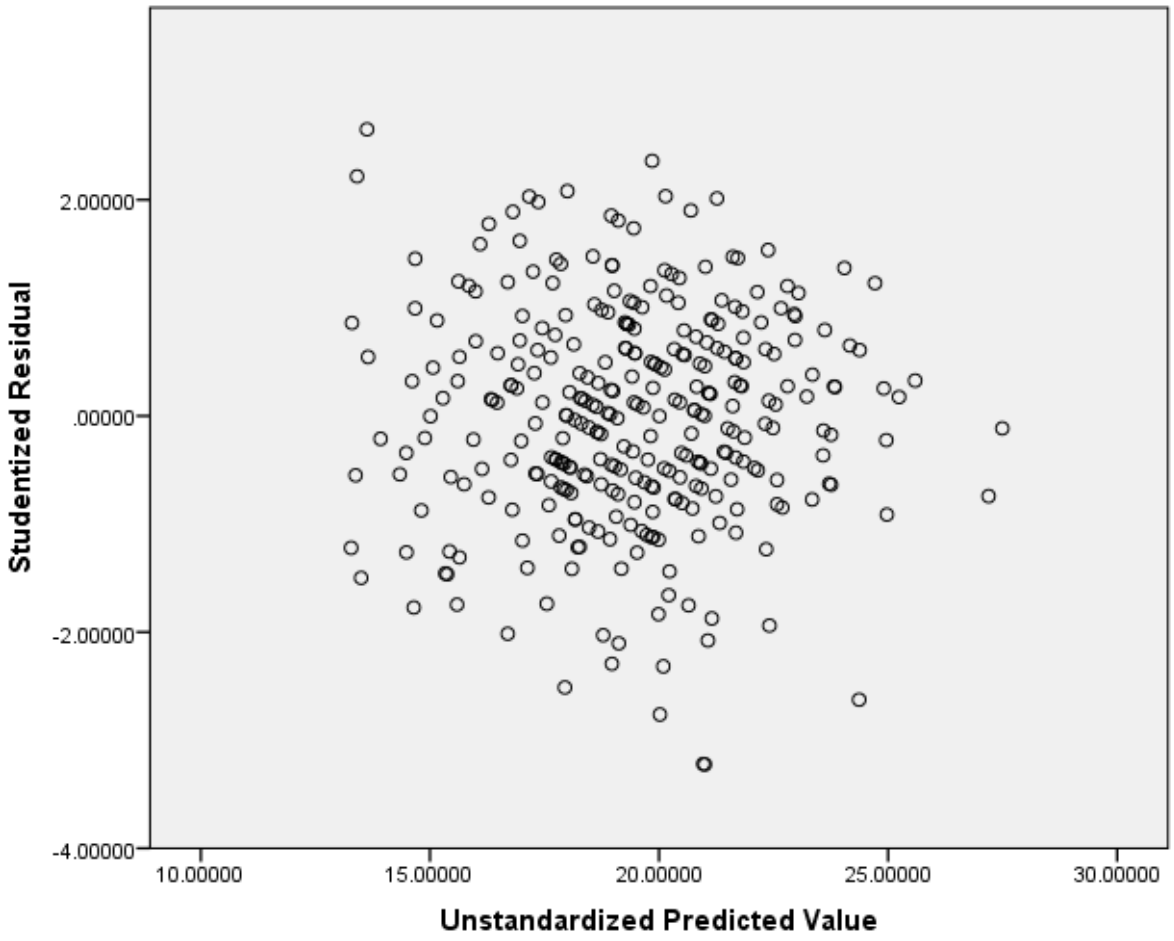
This figure is a direct copy of the output retrieved from SPSS. The descriptive statistics reported for the distribution of standardised residuals in the dependent variable of work-nonwork interruptions were: N = 321, M = 5.74, SD = 0.99.

Figure 8: P-P Plot of Regression Standardised Residuals for the Dependent Variable of Work-Nonwork Interruptions



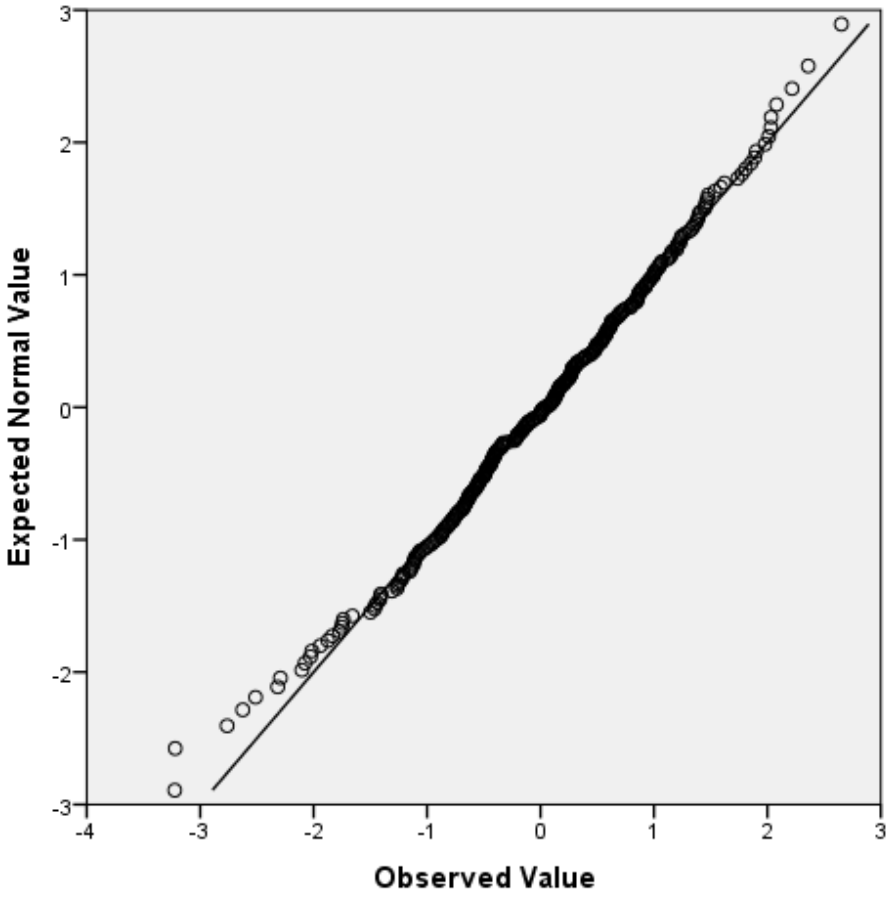
This figure is a direct copy of the output retrieved from SPSS.

Figure 9: Scatterplot of the Residuals in the Hierarchical Linear Multiple Regression Analysis



This figure is a direct copy of the output retrieved from SPSS.

Figure 10: Normal Q-Q Plot of Expected and Observed Studentised Residuals in the Hierarchical Regression Analysis



This figure is a direct copy of the output retrieved from SPSS.

Appendix Four
Study Two Participant Information

Appendix 4.1: Participant Information of Participants in the Pilot of Study Two

Participant 1. Michael (Male age 50-59)

Michael had been a widower for 4 years at the time of the interview and had sole responsibility for his two children aged 14 and 20. Michael was a Lecturer at a UK University and worked half of his time from home and half from the University site. His interview lasted approximately 50 minutes.

Participant 2. Sarah (Female age 40-49)

Sarah was engaged to be married at the time of the interview, living alone and had no children. She lived in a small village in the UK and ran her own consultancy business from home. When not working, she spent time with her partner and friends, did charity work, ran half marathon events and was also completing a part-time PhD. Most of Sarah's work was from home, except when visiting client sites for meetings or to deliver training courses and interventions. Sarah's interview lasted approximately 35 minutes.

Participant 3. Paul (Male aged 26-30)

Paul lived in a shared house at the time of the interview and was in a non-cohabiting relationship. He had no children. He worked for a local charity, with some time working from the office and some from home. Paul's interview lasted approximately 25 minutes.

Appendix 4.2: Participant Information of Participants in Study Two

Strong Segmentors

Oliver

Oliver worked as an independent consultant on a self-employed basis, but sometimes as an employee of other organisations. He lived in the UK and works full-time, on average 25 hours per week from home and had done so for 8 years. He liked to work in different places around the house while teleworking. Oliver primarily used a laptop and basic mobile telephone for his work and decided not to have a smartphone due to its potential to create interruptions. He relied heavily on the internet, email, telephone calls and video conferencing to communicate for work. In his spare time Oliver enjoyed engaging in sports and was a sports coach. He had two children and his wife was pregnant with their third child at the time of the interview.

Kate

Kate worked as a self-employed nursing consultant working for various organisations including the Government. She had been teleworking for over ten years. She used a smartphone, laptop, an extra computer screen, online video conferencing software and relied heavily on her online calendar system and reminders to do her job. Kate converted a bedroom of her house into a separate office space where she worked and kept all of her files and equipment. Kate was married and had two teenage children and had caring responsibilities for her grandmother and some responsibility for her elderly parents who also lived nearby. Her husband worked away for long periods of time, so she was primarily responsible for childcare and household tasks. Kate felt strongly that teleworking enabled her to manage all of her responsibilities and to be able to work as well.

Rochelle

Rochelle was employed as an Occupational Health Advisor. She had been working from home for some of the time for the past 10 years in different jobs. At the time of the interview she spent some of the time working from home and some time out and about at face to face

meetings or travelling to meetings for her job. She previously worked from home full-time and disliked doing so full-time. Rochelle worked from a bedroom in her home which she converted into an office and in her role she used a smartphone and laptop to telework. Rochelle was married and has grown children who have left home. She liked to spend time with her grandchildren; enjoyed travelling, walking, local history and spending time with family.

Oona

Oona was a human resources consultant and trainer, running her own business from home. Her work involved training, teaching, assessing students, counselling, consulting and mentoring and was mainly home based with some work out of the home for face to face meetings. Her work is not standard nine to five, Monday to Friday, as she worked some weekends to assess students. She had been working from home for approximately nine months, but prior to setting up her own business she had a job that involved working from home for some of the time. Being able to work from home was part of the attraction of setting up her own business and working part-time, as Oona developed some health conditions which were difficult to manage in a full-time office job. She used a smartphone and laptop for work and worked from an office which was based in a building separate from the house, in the garden. Oona had a partner and no children. Her partner worked full-time away from home and she used the time that he arrived back from work as a cut off point for her own work not working after he had returned home. In her spare time Oona liked to be with friends, gardening, reading, visiting stately homes and gardens and cinema.

Work Boundary Protectors

Maxwell

Maxwell worked as a self-employed, independent researcher in the computer graphics industry. He was a non-French national, living in France and felt quite isolated in his role. He had been home-based for seven years and on average worked approximately 60 hours per week all from home. He used a laptop, the internet and email to do his work and described

his work as his hobby. He enjoyed participating in online discussions and researching topics of interest on the internet. He was single and had no children.

Gary

Gary was working in higher education doing teaching and also completing a PhD. Previously, Gary was employed full-time working in the IT industry. In his role Gary used a laptop, specialist software, recording equipment and a smartphone to work from home. Gary felt that he had become very work orientated and had few external hobbies or activities that he was involved in due to being so engrossed in his work. He was married and lived with his wife and they had no children.

John

John was a Canadian national living in the USA and was an employed Knowledge Architect working in the IT sector. He worked full-time from home. John had been working from home for 8 years and had a separate office at home where he did his work. John used a laptop, tablet and landline telephone and the internet, email, telephone calls, instant messaging, social media and applications to carry out his work. John was married with three children. He liked to spend time with his family and enjoys renovating their holiday home in his spare time.

Jill

Jill ran her own vocational rehabilitation business where she wrote assessments and reports for private companies and helps people to manage health conditions and get back into work. She also provided private counselling services and works on wellbeing in the workplace initiatives. She had been working at home for approximately three years and used a laptop, printer, landline telephone, smartphone and a virtual office run by another company who transfered her calls and handled post. Jill made the smallest bedroom in her house into a separate office space where she worked and also had an extension built on to the house which was used as a therapy room for clients. Jill took her laptop on holiday with her, so that she could check emails and relied heavily on her Outlook diary to organise her time. She found the flexibility of teleworking appealing and this is one of the reasons she set up her own home-

based business. Jill was married with grown up children who have left home. She shared household responsibilities with her husband. She occasionally took some responsibility for her grandchildren, such as picking them up from school. Jill liked to travel, go on holidays, out with friends, reading, puzzles, meditation and working out in her own gym at home.

Moderate Managers

Paula

Paula was a full-time manager for a software company based in the USA, but lived and worked in Ireland. She managed eight people, some of whom were based in the USA, so she had to be flexible with times so that she could have meetings with people based in different time zones. She worked from home two to three days a week and spent the rest of the time either delivering training or in the office. She had been working from home in her job for 16 months. Paula had a room at home which she used as a separate office space and sometimes shared this with her husband if he was also working from home on the same day. If he was also at home, the person with the most meetings got the office and the other went to a pull-out desk in the dining room. She used a laptop, iPhone, iPad and videoconferencing software to do her job from home. Paula was married and had a four year old son who was in a crèche full-time. In her spare time, she liked running, cooking, meeting with friends, yoga and spending time with her son.

Karl

Karl worked as a self-employed consultant and author in the electronics industry. He was UK based and had been working at home for over 14 years, working full-time and approximately 40 hours per week based at home. Karl worked in a dedicated office space in his house and often had the house to himself while working. He used a laptop, basic mobile telephone, PC, internet, emails and telephone calls as the main sources of communication for work. Karl enjoyed campanology in his spare time. He lived with his partner, they had no children, but elderly parents that they provided some support to.

Angela

Angela was a full-time Nutritional Therapist doing a combination of self-employed and employed work including some lecturing, writing, work in clinics and some work for an academic organisation. She had been working at home for fourteen years and used a laptop, smartphone and job specific software to telework. She lived in a flat and one of the bedrooms had been converted into a separate office. Angela was single and had no children. In her spare time she liked to go hiking and out for meals.

Christina

Christina was an accountant working for the voluntary sector, living in the United States. She worked 25 hours per week, 13 from home and had worked at home for over 8 years. Christina started working from home after the birth of her son as she wanted to be able to take care of him. She converted part of her basement into a quiet office space, where she works and uses a laptop, smartphone and landline telephone to do her work and relied on the internet, e-mails, telephone calls and instant messaging to communicate with colleagues. Christina was married with two children who are still at home. She shared household responsibilities with her husband and in her spare time she liked to spend time with her family.

Family Boundary Protectors

Jeremy

Jeremy ran his own online business jointly with a family member. He had worked at home for over seven years, full-time, 28 hours of which are typically worked from home. He had a small office space which he shared with his family colleague. Jeremy was diagnosed with an illness in childhood and decided to set up his own business with family because they also experienced health problems and were unable to do a 9-5 job in an office. Jeremy used a laptop, smartphone and PC frequently to carry out his job and relies on the internet, email and video conferencing to communicate with others. In his spare time, he enjoyed going out for meals and socialising with friends, particularly enjoying retreats to the Lake District and 'digitally detoxing', getting away from technology and work. Jeremy had a partner and no children.

Evie

Evie was a researcher for Parliament living in the United Kingdom. She had worked from home for over four years, working full-time with 27 hours being home based. Her home was 250 miles away from the office base. Evie had a dedicated office space to work from, but she also worked in other rooms in her home for variety and she had the house mostly to herself while working. Evie predominantly used a netbook, PC, smartphone and smartwatch, email, the internet, telephone calls and applications very frequently to fulfil her role. Evie was married and had no children.

Karen

Karen was a self-employed transportation research consultant living in the USA. She had been working from home for 12 years and worked approximately 28 hours per week all of which were from home. Karen used a laptop and smartphone regularly for her work and internet, emails, telephone calls and video conferencing with which to communicate. In her spare time, she enjoyed yoga, walking and cycling, travelling and going to the beach. Karen lived at home with her husband and two children aged 17 and 19, her husband also worked from home full-time and they both had separate offices in the house where they do their work. Karen started to work from home so that she could spend more time with her children and manage her non-work commitments better.

Robin

Robin was employed as a research programmer and had been teleworking for nearly two years. He teleworked from home two days per week. He used a laptop, smartphone and conference call software. When he worked from home he did so in the lounge area due to having a small flat, there was no space for him to have a separate office. He created a separate space in his lounge by using his work laptop and keeping his PC and personal laptop separate from his work equipment. He pulled a separate table away for his work laptop, so he was not near his PC which he used for personal use. Robin was single and had no children, was heavily involved in Rugby and social clubs. Prior to being involved in these social activities, he would often work late from home up until 10.00pm at night, so his involvement

in community activities led him to set firmer boundaries and helped to stop him from overworking.

Strong Integrators

Jools

Jools was a UK based, self-employed analytics consultant and Associate Lecturer and also completing a PhD. Jools had been working from home for three years and had a separate office to work from, but still liked to move around the house into different rooms to work. Jools used a smartphone and laptop to work and relied heavily on using the internet and email. He used his smartphone a lot, particularly outside of his working time to do work-based tasks and respond to work-based communications. He lived at home with his wife and they had no children or specific caring responsibilities. In his spare time Jools liked to socialise in the pub and had a home gym.

Georgina

Georgina worked part-time as an Audio Transcriptionist for 20 hours per week and was also a part-time post-graduate student. She needed access to the internet and emails through which she received allocated work and used a laptop and headphones to complete her transcriptions. When she first started working from home, Georgina worked in any room of the house with a laptop, but she got a desk into one of the bedrooms to help create a separate space. Georgina was married with one six year old son. She had been working at home for approximately four years and chose to work from home so that she could take care of her child. She did not have a lot of free time, but when she was free, she liked to spend time with her husband and son and also enjoyed knitting.

Helena

Helena ran businesses from home; which involved recruitment and managing social media accounts. She had teleworked for six years and after setting up her businesses she moved into different accommodation so that she could create a separate professional office space in her home that would also be suitable for meetings. Prior to moving into new accommodation,

she lived and worked in the same space and found it very difficult to switch off from work because the computer and equipment she used was too readily available to resist outside of working hours. She used a laptop and iPhone and needed access to the internet and social media sites for work. Helena lived with her partner who was disabled, so she had some caring responsibilities for him. The couple had no children. Helena did most of the household tasks herself, except for having a cleaner. She was on call to help her grandparents who lived nearby. Helena described herself as very family orientated, spending her spare time with her family.

Serena

Serena was working at a college, teaching, tutoring and also completing a PhD. Serena used a laptop, iPad and smartphone to telework. She lived with her parents and had some caring responsibilities for her mother and elderly grandmother. She had one bedroom in her mother's house, which was both her bedroom and a work space with a printer, computer and desk. Serena felt that she had very little free time, but what she did have she spent on going out a few times a week for lunch with friends. Her work often interfered with her personal time and she frequently cancelled opportunities to socialise for work.

Appendix Five
Interview Schedules for Study Two

Appendix 5.1: Pilot Interview Schedule

Part 1: General Questions

1. Tell me a bit about your job and what it involves…
2. How long have you been working at home for?
3. Was working at home something you chose to do, or something that you had no choice over?
4. What technology and communication do you use to do your job?
5. How have you set up your home environment so that you can work in it?
6. Is your home working environment close to what you would regard as ideal?
7. What kind of non-work tasks do you need to do in a typical week?
8. How do these non-work commitments impact on the organisation of your work time?

Part 2: Boundary management during work time

1. When you are working, do you deliberately organize your time so that you can also deal with non-work commitments, or do you prefer to try and focus solely on work?
2. When you are working, what strategies/techniques do you utilize to help you deal with and manage non-work commitments?
3. When you are working, how common is it that you have to deal with unprompted non-work demands?
    a. If you regularly have to do this, how do you feel about this?
    b. How do you manage such unprompted demands/interruptions?
4. What role does your electronic devices such as mobile phone, laptop etc play in how you manage non-work commitments during work time?
    a. Do they help with managing it, or can they be a source of distraction and/or interruption (such as via checking social media for personal reasons)

Part 3: Boundary management during non-work time (these questions are identical to part 2, but in relation to non-work time)

1. When you are not working, do you deliberately organize your time so that you can also deal with work commitments, or do you prefer to try and not deal with work issues during non-work time?
2. When you are not working, what strategies/techniques do you utilize to help you deal with and manage work commitments?

3. When you are not working, how common is it that you have to deal with unprompted work demands?
    a. If you regularly have to do this, how do you feel about this?
    b. How do you manage such unprompted demands/interruptions?
4. What role does your electronic devices such as mobile phone, laptop etc play in how you manage non-work commitments during work time?
    a. Do they help with managing it, or can they be a source of distraction and/or interruption (for example, do you find it difficult to stop checking my electronic devices for work communications?)

Part 4: Closing

1. In general terms, how easy or challenging do you feel it is for you to both do the best for your work and best for home life due to your working at home?
2. Do you have anything else you might want to add?

Pilot Study Specific Questions

1. Is there anything you would change about this interview?
2. Is there anything you would add to this interview?
3. Would you have preferred to receive the questions in advance or have a surprise? What was it like to have the questions in advance or not have them?
4. Do you have any other comments or suggestions about how this interview could be improved?

Appendix 5.2: Final Interview Schedule

The interview schedule is presented below. The highlighted green sections were areas for prompting to generate more in-depth data

Part 1 - General Questions

1. Tell me a bit about your job and what it involves…

   What kind of tasks do you need to do?

2. How long have you been working at home for?
3. Was working at home something you chose to do, or something that you had no choice over?
4. What technology and communication do you use to do your job?
5. How have you set up your home environment so that you can work in it?
6. Is your home working environment close to what you would regard as ideal?
7. What kind of non-work tasks do you need to do in a typical week?
8. What kind of things do you like to do in your free time?

   Hobbies, interests, activities, causes etc

9. How do these non-work commitments impact on the organisation of your work time?

Part 2 - Boundary management during work time

1. When you are working, do you deliberately organize your time so that you can also deal with non-work commitments, or do you prefer to try and focus solely on work?

   a) Why? Have you always done it like this or is it something more recent?

   Is it important to you work in this way? Why/Why not?

2. When you are working, what strategies/techniques do you use to help you deal with and manage non-work commitments?
3. When you are working, how common is it that you have to deal with unprompted non-work demands?

   a) If you regularly have to do this, how do you feel about this? (to what extent do they bother you?)

   b) How do you manage such unprompted demands/interruptions?

4. What role does technology play in how you manage non-work commitments during work time?

   a) Do they help with managing it, or can they be a source of distraction and/or interruption (such as via checking social media for personal reasons)

Part 3 - Boundary management during non-work time (these questions are identical to part 2, but in relation to non-work time)

1. When you are not working, do you deliberately organize your time so that you can also deal with work commitments, or do you prefer to try and not deal with work issues during non-work time?

   a) Why? Have you always done it like this or is it something more recent?

   Is it important to you work in this way? Why/Why not?

2. When you are not working, what strategies/techniques do you use to help you deal with and manage work commitments?

3. When you are not working, how common is it that you have to deal with *unprompted work demands?*

   a) If you regularly have to do this, how do you feel about this? (to what extent do they bother you?)

   b) How do you manage such unprompted demands/interruptions?

4. What role do technology play in how you manage work commitments during work time?

   a) Do they help with managing it, or can they be a source of distraction and/or interruption (for example, do you find it difficult to stop checking electronic devices for work communications?)

Closing

1) In general terms, how easy or challenging do you feel it is for you to both do the best for your work and best for home life?
2) Do you have anything else you might want to add?

Appendix Six
Qualitative Data Analysis

Appendix 6.1: Template One

The initial template based on the first five transcripts is displayed below:

1) **Interruptions**

Direction of interruptions a) Work to non-work, b) Non-work to work, c) Work to work, d) Non-work to non-work

Nature of interruptions a) people based, b) technology based, c) task based

Attitudes and responses to interruptions

Predictable and unpredictable interruptions

Necessary and unnecessary interruptions

2) **Boundary Management**

Boundary setting

Management 'tools' a) people, b) physical, c) time, d) technology

Use of space (creating segmentation or integration)

Philosophies and values (in relation to boundary management by participants)

Flexibility of the boundary a) segmenting b) integrating c) influence of workload

Feelings (about how the boundary is managed, such as guilt)

3) **Technology**

Utility/function of technology

Increase in flexibility (e.g able to work in hospital waiting room)

Boundary blurrer a) breaking down psychological barrier, b) intrusive

Technology management (e.g switching off, not having a Smartphone)

Immediacy of response (e.g slowing down need to respond as quickly)

Boundary management tool a) gatekeeper, b) barrier, c) distinguish time boundary

'Technology shaping/crafting' trial and error of technology use over time

4) **Individual Differences**

Personality (observations of participants related to personality of self/others and teleworking)

Personal preferences (in ways of working)

Mood

Generational differences a) related to technology, b) power

Differences in what is being managed a) personal life responsibilities, b) interests and activities, c) priorities

Individual style of working (whether at home or in an office)

5) Teleworking

Others views/attitudes (on teleworking, teleworkers)

Flexibility

Advantages and disadvantages (of telework)

Autonomy

Job/life shaping 'crafting' (?) a) shaping job/life by choosing to telework, b) shaping job/life around or because of teleworking environment, c) shaping technology to job/life

6) Other people

Management of technology (views and learning on other people's use of technology use)

Management style (views and learning on other people's boundary management techniques and styles)

Attitudes of others (to their boundary management style and technology use)

Conflict (with others and feelings around this such as guilt)

Responsibilities (toward other people, e.g caring responsibilities)

Training (other people to respect their boundary e.g via not answering email/phone straight away)

7) Other codes

Time management a) banking time from one sphere to the other, b) prioritising, c) planning and organisation, d) small and large chunks of time, e) synchronising with others, f) trust (being trusted to manage own time)

Task management

Autonomy

Isolation

Focus

Workload

Breaks (use of breaks)

Appendix 6.2: Template Two

The following template displays codes from the first 10 transcripts analysed. The codes are not displayed in order of importance.

Interruptions

1) Direction of interruptions
   a) Work to Non-work
   b) Non-work to Work
   c) Work to Work
   d) Non-work to Non-work
2) Nature of interruptions
   a) People based
   b) Technology based
   c) Telework related interruptions
3) Attitudes and responses to interruptions
   a) Changing over time
   b) Differing attitudes depending on source of interruption
   c) Differing responses
4) Predictable and unpredictable interruptions
5) Necessary and unnecessary interruptions
6) Interruption management

Boundary Management

1) Time/Task Management
   a) Techniques used to manage time
      i) Compartmentalising/chunking time slots
      ii) 24 hour, 7 day time frame
      iii) Time banking
      iv) Synchronising with others
2) Proactive boundary management
3) Reactive boundary management
4) Personal preferences
5) Boundary management tools
   a) People
   b) Physical space
   c) Time
   d) Technology

Technology

1) Function/role of technology
   a) Boundary blurring

   b) Segmenting via technology
   c) Increased flexibility
2) Technology management
   a) Proactive
   b) Reactive
   c) Awareness it could be different
3) Immediacy of response
4) Technology shaping/crafting
   a) Trial and error, changing over time due to learning and technology changes
   b) Future plans: clear idea of how they would like technology use to be
5) Alerts/Awareness makers

Individual Differences

1) Participants' observations of their own personalities/traits
2) Individual style of working regardless of whether it's an office or home
3) Comparison of themselves to other people
   a) In ways of working
   b) Personality and traits
4) Personal preferences non-explicitly stated
5) Differences in what is being managed

Teleworking

1) Advantages and disadvantages to teleworking
2) Reasons to telework
   a) Geographical
   b) Family/Children
3) Attitudes of others to telework/teleworkers
   a) Mistrust
   b) Not 'real work'
   c) Positive attitude
4) Feelings about being a teleworker
   a) Guilty
   b) Lucky
5) Flexibility

Shaping/Crafting

1) Shaping boundary
   a) In response to external circumstances/factors
   b) Personal circumstances
   c) Comparison to others

    d) Over time due to learning
2) Proactive shaping of
    a) job environment
3) Creating conditions
    a) Workspace
    b) Psychological focus
4) Future goals and plans: How they would like their job, boundary and tech use to be

<u>Other Codes</u>

Other people

1) Work-Life Conflict
2) Setting boundary with other people
3) Other people helping to manage boundary
4) Attitudes/Philosophies to other people's tech use and boundary management
5) Other people's attitudes to telework

Workload

1) Responsiveness to workload

Focus

1) Choosing what to focus on: work or home life
2) Conscious effort to focus

Control

1) Perceived boundary control
2) Relationship to technology

Contradiction

1) Cognitive dissonance?
2) Process of interview giving opportunity to process thoughts

Space

1) Creating workspace at home
2) Flexibility of use of workspace: adaptability of space, changing temporal boundary

Breaks

1) Use of breaks

Flexibility

Isolation

Autonomy

Appendix 6.3: Template Three

Interruptions

1. Direction of Interruptions
2. Nature of Interruptions a) technology related and b) telework related
3. Type of Interruptions - a) urgent and b) non urgent
4. Responses to interruptions.

Boundary Management

1. Proactive boundary management
2. Reactive boundary management
3. Integration
4. Personal preferences
5. Boundary management tools

a) People
b) Physical space
c) Time
d) Technology

6. Time Management

a) Temporal Boundary
b) 24 hour, 7 day time frame
c) Time banking
d) Volleying
e) Time chunking to create segmentation

7.Task Management

a) Integrating tasks throughout the day
b) Clustering and synchronising to save time

Individual Differences

1) Participants' observations of their own personalities/traits
2) Individual style of working regardless of whether it's an office or home
3) Comparison of themselves to other people

a) In ways of working
b) Personality and traits

4) Personal preferences non-explicitly stated
5) Differences in what is being managed

Teleworking

1. Advantages and disadvantages to telework
2. Attitudes to telework
3. Feelings about being a teleworker
4. Identity as a teleworker

Work Shaping/Crafting

1. Work in progress
    a) managing boundary,
    b) managing technology,
    c) future goals and reflexivity
2. Telework as a means with which to work craft/telework
3. Crafting conditions
4. Crafting technology
5. Passive change, social learning (not tech related)

Other codes

Work-Life Conflict

Function/role of technology

a) Boundary blurring, b) Segmenting via technology c) Increased flexibility

Response Times

Alerts/Awareness makers, Slow/fast response

Workload

1) Responding by checking/use of tech and doing extra work due to workload

2) Fighting the tide (doing extra outside of work to prevent difficulties during work)

Control

1) Perceived boundary control

2) Relationship to technology

Contradictions

1) Cognitive dissonance – general contradictions

2) Process of interview giving opportunity to process thoughts

3) Contradictions in relation to work-life style

Space

1) Creating workspace (psychological conditions for working) i) general shaping of environment ii) Creating separation

2) Nature of work spaces i) multi-purpose workspaces ii) Changing spaces

Nature of Breaks

1) Changing tasks – a change can be as good as a rest

2) Using technology during breaks (as a break)

Isolation

Dealing with isolation

Focus

1) Choosing what to focus on: work or home life

2) Conscious effort to focus

Autonomy

Function of technology

Response times

Appendix 6.4: Template Four

Boundary Management

1. Proactive boundary management
2. Integration a) tasks, b) work-life conflict
3. Boundary management tools a) people, b) physical space, c) time, d) technology
4. Time Management Techniques a) 24 hour, 7 day time frame, b) time banking, c) volleying, d) Time chunking to create segmentation e) clustering and synchronising
5. Work demands a) Responding to workload b) Fighting the tide (preventing difficulties during work)
6. Nature of Breaks, a) changing tasks b) Using technology during breaks
7. Attitudes to others' boundary management

Work Crafting

1. Work in progress: a) managing boundary, b) managing technology, c) future goals and reflexivity
2. Telework as a means to work craft
3. Crafting conditions: a) creating workspaces b) creating separation/focus, c) dealing with isolation
4. Crafting technology a) role of technology, b) perceived control of technology
5. Passive change

Individual Differences

1) Preferences/traits a) participants' observations of their own traits b) participants' awareness of own boundary preferences c) preferences (not specifically stated)
2) Comparisons to other people a) ways of working b) traits
3) Individual differences effecting boundary management
4) Individual style of working regardless of office or home
5) Contradictions a) Cognitive dissonance, b) Contradictions in relation to work-life style

Teleworking

1. Teleworking a) advantages b) disadvantages c) differences to office
2. Attitudes to telework, a) other peoples, b) feelings about being a teleworker
3. Identity as a teleworker

Interruptions

1. Direction of Interruptions
2. Source of Interruptions a) technology related b) telework related
3. Type of Interruptions a) urgent and b) non urgent
4. Responses to interruptions

Appendix 6.5 Table of Frequencies of the Subthemes within the Theme of Boundary Management in the Final Template

Table 36: Frequency of the Subthemes in the Boundary Management Theme

Theme 1: Boundary Management						
Theme	**Strong Segmentor**	**Work Boundary Protector**	**Moderate Manager**	**Family Boundary Protector**	**Strong Integrator**	**Total**
Segmentation	30	14	28	15	13	100
Integration	10	14	18	28	20	90
Work Demands	13	11	13	9	10	56
Nature of Breaks	4	4	5	12	4	29
Evolving Approaches to Boundary Management via Social Comparisons	7	3	6	10	4	30

Appendix 6.6: Table of Boundary Management Behaviours Using Technology and Non-technology and Their Potential Influence on the Work/Nonwork Boundary According to Boundary Management Groups

Colour coding of influences on work-life boundary categories:

1. Reduces Nonwork-Work interruptions
2. Increases Nonwork-Work interruptions
3. Reduces Work-Nonwork interruptions
4. Increases Work-Nonwork interruptions
5. Reduces both (segmentation)
6. Increases both (integration)
7. Reduces Work-Work interruptions
8. Increases Work-Work interruptions

Colour coding of boundary management categories:

1. Work Boundary Protectors
2. Family Boundary Protectors
3. Moderate Managers
4. Strong Segmentors
5. Strong Integrators

Participant Column:

Participants were numbered from one to four within each category, the numbers in this column denote the participant according to their number. At the end of each section the frequency is recorded along with the number of participants recorded in that section out of the total of four for each group e.g two participants out of four would be 2/4.

Table 37: Boundary Management Behaviours and their Potential Influence on the Boundary

	Boundary Management Behaviours	Potential influence on Boundary	Participant	Boundary Management Category
	Type of behaviour: Smartphone/Mobile phone use			
1	**Pretending to receive a text message to get friends to cut their visit short**	**Reduces Nonwork-Work interruptions**	**1**	**Family Boundary Protector**
2	**Telling friends and family not to call/text during work**	**Reduces Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
3	**Use of the phone as a gatekeeper e.g phone or text first before coming over**	**Reduces Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
4	**Asking people to text rather than phone so phone calls can take place at a more convenient time**	**Reduces Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
5	**Using technology for personal use at break times to reduce distractions and prevent**	**Reduces Nonwork-Work interruptions**	**4**	**Family Boundary Protector**

	working late to make up for time lost			
			Frequency = 5	
			Participants = 3/4	
6	**Asking telesales/calls from unsolicited sources to call back after work hours**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Segmentor**
7	**Not looking at personal phone during work and missing texts from wife**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Segmentor**
8	**Avoiding texting and communicating with wife during work**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Segmentor**
9	**Friends and family know they won't get an immediate response if they text during work**	**Reduces Nonwork-Work interruptions**	**3**	**Strong Segmentor**
			Frequency = 4	
			Participants = 2/4	
10	**Placing phone on silent while working**	**Reduces Nonwork-Work interruptions**	**2**	**Strong Integrator**
			Frequency = 1	
			Participants = 1/4	
11	**Switching off the phone during meetings**	**Reduces Nonwork-Work interruptions**	**1**	**Moderate Manager**
12	**Removing Smartphone from presence while focussing on work**	**Reduces Nonwork-Work interruptions**	**1**	**Moderate Manager**
13	**Switching mobile phone off while entering work sites to make self inaccessible**	**Reduces Nonwork-Work interruptions**	**2**	**Moderate Manager**
14	**Using technology e.g checking Facebook during break times only**	**Reduces Nonwork-Work interruptions**	**3**	**Moderate Manager**
			Frequency = 4	

			Participants = 3/4	
15	**Coming out of a meeting early and using the spare time gained from the early finish to use the Smartphone**	**Reduces Nonwork-Work interruptions**	**1**	**Work Boundary Protector**
16	**Reducing time spent talking to wife on phone by sending quick text messages instead**	**Reduces Nonwork-Work interruptions**	**1**	**Work Boundary Protector**
			Frequency = 2	
			Participants = 1/4	
			Overall total = 16	
17	**Answering the phone more when it is the 'personal' ring tone**	**Increases Nonwork-Work interruptions**	**1**	**Family Boundary Protector**
18	**Checking for non-work emails during work time**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
19	**Allowing Smartphone notifications for non-work purposes during work time**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
20	**Checking 'Whats App' during work time**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
21	**Writing emails in relation to organising social activities for a nonwork group during work time**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
22	**Checking nonwork text messages throughout the day**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
23	**Checking phone in the short spaces of time between meetings and between tasks**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
24	**Push notifications on Smartphone for emails and Facebook**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
			Frequency = 8	

			Participants = 3/4	
25	**Answering personal emails in work time**	**Increases Nonwork-Work interruptions**	**3**	**Work Boundary Protector**
26	**Answering texts from friends/family straightaway during work time**	**Increases Nonwork-Work interruptions**	**3**	**Work Boundary Protector**
			Frequency = 2	
			Participants = 1/4	
			Overall total = 10	
27	**Partner getting annoyed with checking Smartphone so trying not to check it**	**Reduces Work-Nonwork interruptions**	**2**	**Work Boundary Protector**
28	**Very infrequently physically distancing from the phone, leaving it in another room after work**	**Reduces Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
29	**Occasionally putting the Smartphone to one side at 8.00pm**	**Reduces Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
			Frequency = 3	
			Participants = 2/4	
30	**Giving up the Smartphone and using a basic mobile phone to reduce intrusiveness**	**Reduces Work-Nonwork interruptions**	**1**	**Strong Segmentor**
31	**Receiving emails late at night on Smartphone, felt obliged to respond so replaced Smartphone with mobile phone**	**Reduces Work-Nonwork interruptions**	**1**	**Strong Segmentor**
32	**No phones at dinner time**	**Reduces Work-Nonwork interruptions**	**2**	**Strong Segmentor**

33	**Sticking to office hours and being unavailable for communications at evenings and weekends most of the time**	**Reduces Work-Nonwork interruptions**	**3**	**Strong Segmentor**
34	**Not checking emails while out with friends**	**Reduces Work-Nonwork interruptions**	**3**	**Strong Segmentor**
35	**Feeling like I've given my all when I switch the computer and work phone off at the end of the day**	**Reduces Work-Nonwork interruptions**	**4**	**Strong Segmentor**
36	**Placing out of office notices on emails**	**Reduces Work-Nonwork interruptions**	**4**	**Strong Segmentor**
			Frequency = 7	
			Participants = 4/4	
37	**Deliberately trying not to use Smartphone in the evening and at weekends, so as not to annoy wife**	**Reduces Work-Nonwork interruptions**	**1**	**Strong Integrator**
38	**Not checking emails or using phone during child's school play/special events**	**Reduces Work-Nonwork interruptions**	**4**	**Strong Integrator**
			Frequency = 2	
			Participants = 2/4	
39	**Digital detox, going to the lake district to get away from technology**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
40	**Leaving phone in another room if wanting to do something 'just for me'**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
41	**Not looking at phone while with friends**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
42	**Sending quick emails to say 'I will get back to you by…' to reduce**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**

	follow up and repeated emails and calls			
43	**Avoiding immediate responses to work emails, waiting for a good time to respond**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
44	**Checking emails on Sunday's but not replying until Monday morning to set up a standard not to expect responses at weekends**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
45	**Don't open work related emails during work free time**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
46	**Not being available to communications via technology during leisure time**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
			Frequency = 8	
			Participants = 2/4	
47	**If it is not generating new work or not perceived to be important it can wait until Monday**	**Reduces Work-Nonwork interruptions**	**2**	**Moderate Manager**
48	**Training people not to bother you late at night by not answering**	**Reduces Work-Nonwork interruptions**	**2**	**Moderate Manager**
49	**Putting the phone in a drawer on Friday evening**	**Reduces Work-Nonwork interruptions**	**3**	**Moderate Manager**
50	**Switching email account off from Smartphone whilst on holiday**	**Reduces Work-Nonwork interruptions**	**3**	**Moderate Manager**
51	**Notifications for messages on Smartphone switched off**	**Reduces Work-Nonwork interruptions**	**4**	**Moderate Manager**
			Frequency = 5	
			Participants = 3/4	
			Overall total =	

			25	
52	**Flagging emails received at weekends to remind self to respond on Monday**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
53	**Setting up notifications on phone and if these get 'aggressive' answering them**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
54	**Use of Smartphone to check work emails during non-work time**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
55	**Checking for urgent communications during peak/urgent work periods**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
56	**Quickly responding to an email at weekends if it requires a quick response and apologising to daughters while doing so**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
57	**Monitoring emails in the evening but not perceiving this as work related**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
58	**Responding to texts from clients straight away but leaving emails a bit longer**	**Increases Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
59	**Responding to the phone when hearing it buzz rather than ignoring it**	**Increases Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
			Frequency = 8	
			Participants = 2/4	
60	**Refreshing inbox repeatedly to check for communications on Smartphone**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**
61	**Choosing to check the phone for communications even though there has been**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**

	no alert to a communication			
62	**Looking at work emails while in the pub with friends**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**
63	**Email alerts sounding on the Smartphone during nonwork time**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**
64	**Responding immediately to work emails even though I know it's not necessary to respond so quickly**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
65	**Checking emails on Smartphone as soon as possible when getting back to the car**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
66	**Checking and answering emails on New Year's Eve and New Year's Day, which should be nonwork time**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
67	**Switching off emails from the Smartphone, but keeping Facebook on where work communications can still come through**	**Increases Work-Nonwork interruptions**	**3**	**Strong Integrator**
68	**Choosing to take telephone calls from clients while doing the shopping**	**Increases Work-Nonwork interruptions**	**3**	**Strong Integrator**
69	**Keeping phone nearby all the time as work tends to come in by phone**	**Increases Work-Nonwork interruptions**	**4**	**Strong Integrator**
70	**Checking emails at any time due to receiving potential work that needs to be accepted quickly.**	**Increases Work-Nonwork interruptions**	**4**	**Strong Integrator**
71	**Choosing to initiate checking emails rather than waiting for them to build up**	**Increases Work-Nonwork interruptions**	**4**	**Strong Integrator**

			Frequency = 12	
			Participants = 4/4	
72	**Extra checking and emailing out of work time when trying to win a contract**	**Increases Work-Nonwork interruptions**	**1**	**Strong Segmentor**
73	**Checking phone outside of work rather than inside of work**	**Increases Work-Nonwork interruptions**	**2**	**Strong Segmentor**
74	**Checking emails on Smartphone outside of work time but not dealing with them immediately**	**Increases Work-Nonwork interruptions**	**3**	**Strong Segmentor**
75	**Sending work emails while doing nonwork activities via Smartphone**	**Increases Work-Nonwork interruptions**	**3**	**Strong Segmentor**
76	**Checking emails at night if waiting for something important**	**Increases Work-Nonwork interruptions**	**4**	**Strong Segmentor**
77	**Being on call during a weekend for pandemic flu planning during an emergency**	**Increases Work-Nonwork interruptions**	**4**	**Strong Segmentor**
			Frequency = 6	
			Participants = 4/4	
78	**Avoiding answering emails for work after work hours even though checking to see if new emails have come through**	**Increases Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
79	**Occasional accepting of work phone calls at weekend if it generates new work or new clients**	**Increases Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
80	**Responding to work phone calls when spending time at friends**	**Increases Work-Nonwork interruptions**	**2**	**Family Boundary Protector**

81	**Having a quick look at emails coming through to the Smartphone during nonwork time, but not acting on them, just carry on watching TV**	**Increases Work-Nonwork interruptions**	**3**	**Family Boundary Protector**
82	**Checking emails at night to 'get ahead' for the next day at work**	**Increases Work-Nonwork interruptions**	**4**	**Family Boundary Protector**
83	**Answering emails before leaving the house in the morning**	**Increases Work-Nonwork interruptions**	**4**	**Family Boundary Protector**
			Frequency = 6	
			Participants = 3/4	
84	**Being responsive immediately to calls and emails only if it generates new work**	**Increases Work-Nonwork interruptions**	**2**	**Moderate Manager**
85	**386 Checking emails late at night if it's important**	**Increases Work-Nonwork interruptions**	**2**	**Moderate Manager**
86	**Being connected by iPad and iPhone most of the time**	**Increases Work-Nonwork interruptions**	**3**	**Moderate Manager**
87	**361 Having alerts on the phone because it is comforting to know what is happening and deal with it later**	**Increases Work-Nonwork interruptions**	**3**	**Moderate Manager**
88	**Checking emails on Smartphone first thing in the morning to be prepared for the work environment, to check if there is a 'shitstorm'**	**Increases Work-Nonwork interruptions**	**3**	**Moderate Manager**
89	**Feeling under more pressure to answer emails quickly and out of hours due to working with Americans who have a culture of being responsive out of hours**	**Increases Work-Nonwork interruptions**	**3**	**Moderate Manager**

90	**Extra checking during 'sales kick off' as more needs doing during that time**	**Increases Work-Nonwork interruptions**	**3**	**Moderate Manager**
91	**Checking emails coming through to the iPhone in the evening but not perceiving this as work related**	**Increases Work-Nonwork interruptions**	**3**	**Moderate Manager**
92	**On occasion sending emails at 11.00pm while travelling and not expecting a response straight away**	**Increases Work-Nonwork interruptions**	**4**	**Moderate Manager**
93	**Answering phone calls outside of work time**	**Increases Work-Nonwork interruptions**	**4**	**Moderate Manager**
94	**Use of phone to make phone calls for work while spending time with children**	**Increases Work-Nonwork interruptions**	**4**	**Moderate Manager**
95	**If I know there are important things going on I will check at weekends just to check that they are ok**	**Increases Work-Nonwork interruptions**	**4**	**Moderate Manager**
96	**Answering emails that can be done quickly outside of work time to save time during work**	**Increases Work-Nonwork interruptions**	**4**	**Moderate Manager**
			Frequency = 13	
			Participants = 3/4	
			Overall total = 43	
97	**Having separate work and personal phones**	**Reduces both (segmentation)**	**1**	**Strong Segmentor**
98	**Sometimes switching phone off during day to focus on work**	**Reduces both (segmentation)**	**1**	**Strong Segmentor**
99	**Deliberately not syncing emails onto Smartphone**	**Reduces both (segmentation)**	**2**	**Strong Segmentor**
100	**Having two phones, one for work, one for non-work**	**Reduces both (segmentation)**	**3**	**Strong Segmentor**

101	**Turning off push notifications on Smartphone**	**Reduces both (segmentation)**	**4**	**Strong Segmentor**
102	**Having a separate phone for work and personal**	**Reduces both (segmentation)**	**4**	**Strong Segmentor**
			Frequency = 6	
			Participants = 4/4	
103	**Ignoring certain alert noises if don't want to answer it**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
104	**Having different sounds for work and personal communications on the phone**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
105	**Don't have email alerts on the Smartphone so I have to be the one that initiates checking**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
			Frequency = 3	
			Participants = 2/4	
106	**Place phone on silent when deep concentration on a task is needed**	**Reduces both (segmentation)**	**2**	**Strong Integrator**
			Frequency = 1	
			Participants = 1/4	
107	**Place phone on silent to prevent texts unless expecting something significant then it is kept on**	**Reduces both (segmentation)**	**1**	**Moderate Manager**
108	**Switching mobile phone off while driving to make self inaccessible**	**Reduces both (segmentation)**	**2**	**Moderate Manager**
109	**Block off specific time periods in advance when the phone and email will not be responded to**	**Reduces both (segmentation)**	**2**	**Moderate Manager**

110	**Removing technology when focussing on detailed tasks**	**Reduces both (segmentation)**	**4**	**Moderate Manager**
			Frequency = 4	
			Participants = 3/4	
			Overall total = 14	
111	**If engaging in work that is not too demanding 'bits and pieces' keep phone on and allow interruptions**	**Increases both (integration)**	**1**	**Moderate Manager**
112	**Taking conference calls at the small holding**	**Increases both (integration)**	**2**	**Moderate Manager**
113	**Having separate email accounts but both synced onto one phone**	**Increases both (integration)**	**3**	**Moderate Manager**
114	**Has work and personal emails synced onto phone**	**Increases both (integration)**	**4**	**Moderate Manager**
			Frequency = 4	
			Participants = 4/4	
115	**Having Smartphone available at all times**	**Increases both (integration)**	**1**	**Strong Integrator**
116	**Being distracted by work emails while checking nonwork emails due to having one account for both**	**Increases both (integration)**	**1**	**Strong Integrator**
117	**Checking emails 'on the go' regardless of the task at the time**	**Increases both (integration)**	**2**	**Strong Integrator**
118	**Linking iPhone to computer to send texts via computer**	**Increases both (integration)**	**3**	**Strong Integrator**
			Frequency = 4	
			Participants = 3/4	
119	**Having separate accounts but they are loaded to pop up**	**Increases both (integration)**	**2**	**Work Boundary Protector**

	simultaneously on the phone			
			Frequency = 1	
			Participants = 1/4	
			Overall total = 9	
120	**If phone is on silent and notifications are silenced I check for emails**	**Reduces Work-Work interruptions**	**2**	**Strong Integrator**
121	**Placing phone on silent while working**	**Reduces Work-Work interruptions**	**2**	**Strong Integrator**
			Frequency = 2	
			Participants = 1/4	
122	**Putting phone on flight mode during work**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
123	**Removing Smartphone from presence while focussing on work**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
124	**Switching off the phone during meetings but not at other times**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
125	**Place phone on silent to prevent texts unless expecting something significant then it is kept on**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
126	**Switching mobile phone off while entering work sites to make self inaccessible**	**Reduces Work-Work interruptions**	**2**	**Moderate Manager**
127	**Answering emails that can be done quickly outside of work time to save time during work**	**Reduces Work-Work interruptions**	**4**	**Moderate Manager**
128	**Removing technology when focussing on detailed tasks**	**Reduces Work-Work interruptions**	**4**	**Moderate Manager**
			Frequency = 7	

			Participants = 3/4	
129	**Avoiding immediate responses to work emails, waiting for a good time to respond**	**Reduces Work-Work interruptions**	**2**	**Family Boundary Protector**
130	**Sending quick emails to say 'I will get back to you by…' to reduce follow up and repeated emails and calls**	**Reduces Work-Work interruptions**	**2**	**Family Boundary Protector**
			Frequency = 2	
			Participants = 1/4	
131	**Sometimes switching phone off during day to focus on work**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**
132	**Giving up the Smartphone and using a basic mobile phone to reduce intrusiveness**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**
133	**Checking phone outside of work rather than inside of work**	**Reduces Work-Work interruptions**	**2**	**Strong Segmentor**
			Frequency = 3	
			Participants = 2/4	
134	**Coming out of a meeting early and using the spare time gained from the early finish to use the Smartphone**	**Reduces Work-Work interruptions**	**1**	**Work Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 15	
135	**Choosing to check the phone for communications even though there has been no alert to a communication**	**Increases Work-Work interruptions**	**1**	**Strong Integrator**

136	**Refreshing inbox repeatedly to check for communications on Smartphone**	**Increases Work-Work interruptions**	**1**	**Strong Integrator**
137	**Having Smartphone available at all times**	**Increases Work-Work interruptions**	**1**	**Strong Integrator**
138	**If notifications are switched on and phone is not on silent, I check when receiving a notification**	**Increases Work-Work interruptions**	**2**	**Strong Integrator**
139	**Responding immediately to work emails even though I know it's not necessary to respond so quickly**	**Increases Work-Work interruptions**	**2**	**Strong Integrator**
140	**Choosing to initiate checking of emails rather than waiting for them to build up and require a more immediate response**	**Increases Work-Work interruptions**	**4**	**Strong Integrator**
141	**Keeping phone nearby all the time as work tends to come in by phone**	**Increases Work-Work interruptions**	**4**	**Strong Integrator**
142	**Checking emails at any time due to receiving potential work that needs to be accepted quickly. Need to let them know straight away**	**Increases Work-Work interruptions**	**4**	**Strong Integrator**
			Frequency = 8	
			Participants = 3/4	
143	**Checking for urgent communications during peak/urgent work periods**	**Increases Work-Work interruptions**	**1**	**Work Boundary Protector**
144	**Responding to texts from clients straight away but leaving emails a bit longer**	**Increases Work-Work interruptions**	**3**	**Work Boundary Protector**

			Frequency = 2	
			Participants = 2/4	
145	**If engaging in work that is not too demanding 'bits and pieces' keep phone on and allow interruptions**	**Increases Work-Work interruptions**	**1**	**Moderate Manager**
146	**Feeling under more pressure to answer emails quickly and out of hours due to working with American's who have a culture of being responsive out of hours**	**Increases Work-Work interruptions**	**3**	**Moderate Manager**
147	**Extra checking during 'sales kick off' as more needs doing during that time**	**Increases Work-Work interruptions**	**3**	**Moderate Manager**
			Frequency = 3	
			Participants = 2/4	
			Overall total = 13	
	Type of behaviour: Laptop usage			
148	**Having two screens while working, one for work and one for communications, has LinkedIn and professional tabs open but not personal**	**Reduces Nonwork-Work interruptions**	**1**	**Work Boundary Protector**
149	**Using software to block access to the internet while working on laptop**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
150	**Closing non-work tabs on the laptop while working leaving work tabs open**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**

151	**Laptop used for work but not for personal use**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
152	**Reducing the number of tabs open while working by using specialist software**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
			Frequency = 5	
			Participants = 2/4	
153	**Moving towards closing tabs while working, to enable focus on one task at a time**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Integrator**
154	**Only having work tabs open during work on a laptop**	**Reduces Nonwork-Work interruptions**	**2**	**Strong Integrator**
			Frequency = 2	
			Participants = 2/4	
155	**Only looking at Facebook and social media during breaks not while working**	**Reduces Nonwork-Work interruptions**	**4**	**Strong Segmentor**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 8	
156	**Doing online shopping during work time**	**Increases Nonwork-Work**	**1**	**Work Boundary Protector**
157	**Doing some nonwork tasks to reduce boredom of work tasks such as checking online banking**	**Increases Nonwork-Work**	**3**	**Work Boundary Protector**
158	**Paying credit card bill while work is slow**	**Increases Nonwork-Work**	**3**	**Work Boundary Protector**
159			**Frequency = 3**	
			Participants = 2/4	

	Keeping Facebook open all day while working	**Increases Nonwork-Work**	**3**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
160	**Opening social media account while working**	**Increases Nonwork-Work**	**4**	**Moderate Manager**
			Frequency = 1	
			Participants 1/4	
			Overall total = 5	
161	**Leaving laptop in office after work and not accessing it again until work time**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
162	**Trying to slow down responses and not answering emails after work unless it is urgent**	**Reduces Work-Nonwork interruptions**	**1**	**Strong Segmentor**
163	**Not feeling the need to respond immediately to emails, waiting a few days to reply**	**Reduces Work-Nonwork interruptions**	**1**	**Strong Segmentor**
			Frequency = 2	
			Participants = 1/4	
			Overall total = 3	
164	**Checking work emails frequently to be available, so as not to miss out or cause harm to career later**	**Increases Work-Nonwork interruptions**	**2**	**Work Boundary Protector**
165	**Taking laptop to meetings at different locations in case there is**	**Increases Work-Nonwork interruptions**	**2**	**Work Boundary Protector**

	spare time which can be used for work			
166	**Taking laptop on holiday to check on work related communications**	**Increases Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
			Frequency = 3	
			Participants = 2/4	
167	**Taking laptop to hospital while visiting sick relative to find time to work while there**	**Increases Work-Nonwork interruptions**	**2**	**Moderate Manager**
168	**Doing some extra work after the children have gone to bed at busy times**	**Increases Work-Nonwork interruptions**	**4**	**Moderate Manager**
			Frequency = 2	
			Participants = 2/4	
169	**Carrying laptop to most places especially if going somewhere for more than an hour**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**
170	**Leaving work emails open on laptop, even though watching a programme on the laptop in the evening**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**
171	**Using laptop at night for personal reasons and checking work related things at the same time**	**Increases Work-Nonwork interruptions**	**3**	**Strong Integrator**
			Frequency = 3	
			Participants = 2/4	
172	**Sometimes checking emails at weekends but not responding to them**	**Increases Work-Nonwork interruptions**	**3**	**Strong Segmentor**
			Frequency = 1	
			Participants = 1/4	
			Overall total =	

			9	
173	Checking emails at set times, morning, lunch and at the end of the day	Reduces both (segmentation)	2	Family Boundary Protector
174	Has separate work and personal laptops	Reduces both (segmentation)	4	Family Boundary Protector
			Frequency = 2	
			Participants = 2/4	
175	Closing down applications on the laptop while working	Reduces both (segmentation)	1	Moderate Manager
176	Removing email pop ups on the laptop while working to reduce distractions	Reduces both (segmentation)	3	Moderate Manager
			Frequency = 2	
			Participants = 2/4	
177	Sticking to checking emails 3 times a day morning, lunch and afternoon, not all day	Reduces both (segmentation)	2	Strong Segmentor
178	Having a separate work computer, doesn't go on it for personal use	Reduces both (segmentation)	4	Strong Segmentor
			Frequency = 2	
			Participants = 2/4	
179	Using bookmarks and tags to reduce the number of tabs open at a time	Reduces both (segmentation)	1	Strong Integrator
			Frequency = 1	
			Participants = 1/4	
			Overall total = 7	
180	Leaving tabs open for work and nonwork at	Increases both (integration)	2	Strong Integrator

	the same time while completing a task			
			Frequency = 1	
			Participants = 1/4	
181	**Listening to meetings on a wireless headset and doing nonwork tasks at the same time, such as tidying up**	**Increases both (integration)**	**1**	**Work Boundary Protector**
182	**Being continuously switched on to Skype and email to be open to communications**	**Increases both (integration)**	**4**	**Work Boundary Protector**
			Frequency = 2	
			Participants = 2/4	
			Overall total = 3	
183	**Moving towards closing tabs while working, to enable focus on one task at a time**	**Reduces Work-Work interruptions**	**1**	**Strong Integrator**
184	**Using bookmarks and tags to reduce the number of tabs open at a time**	**Reduces Work-Work interruptions**	**1**	**Strong Integrator**
185	**Avoiding email checking when the task requires deep concentration but not being so strict if it is a less important task**	**Reduces Work-Work interruptions**	**2**	**Strong Integrator**
186	**Place phone on silent when deep concentration on a task is needed**	**Reduces Work-Work interruptions**	**2**	**Strong Integrator**
			Frequency = 4	
			Participants = 2/4	
187	**Closing down tabs while working such as LinkedIn**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**

188	**Sticking to checking emails 3 times a day morning, lunch and afternoon, not all day**	**Reduces Work-Work interruptions**	**2**	**Strong Segmentor**
189	**Removing pop up email reminders while working on laptop**	**Reduces Work-Work interruptions**	**2**	**Strong Segmentor**
190	**Responding to emails quickly unless working to a deadline**	**Reduces Work-Work interruptions**	**3**	**Strong Segmentor**
			Frequency = 4	
			Participants = 3/4	
191	**Using software to block access to the internet while working on laptop**	**Reduces Work-Work interruptions**	**2**	**Work Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
192	**Checking emails at set times, morning, lunch and at the end of the day**	**Reduces Work-Work interruptions**	**2**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
193	**Closing down applications on the laptop while working**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
194	**Removing email pop ups on the laptop while working to reduce distractions**	**Reduces Work-Work interruptions**	**3**	**Moderate Manager**
195	**Allowing pop ups email notifications on laptop but turning off the sound to reduce distractions (need to look to see if new work is coming in)**	**Reduces Work-Work interruptions**	**4**	**Moderate Manager**
			Frequency = 3	

			Participants = 3/4	
			Overall total = 13	
196	**Leaving alerts on to tell if there are problems with downloaded files while working**	**Increases Work-Work interruptions**	**1**	**Strong Integrator**
197	**Having email tabs open during work and flicking through these during working**	**Increases Work-Work interruptions**	**2**	**Strong Integrator**
198	**Only having work tabs open during work on a laptop**	**Increases Work-Work interruptions**	**2**	**Strong Integrator**
199	**Leaving tabs open for work and nonwork at the same time while completing a task**	**Increases Work-Work interruptions**	**2**	**Strong Integrator**
200	**Having sound free alerts in the corner of the screen to alert to work-based emails**	**Increases Work-Work interruptions**	**4**	**Strong Integrator**
			Frequency = 5	
			Participants = 3/4	
201	**Having emails open in the background while working**	**Increases Work-Work interruptions**	**3**	**Strong Segmentor**
			Frequency = 1	
			Participants = 1/4	
202	**Having Instant Messenger switched on and responding to these messages while doing an online presentation**	**Increases Work-Work interruptions**	**1**	**Work Boundary Protector**
203	**Having two screens while working, one for work and one for communications, has LinkedIn and professional tabs open but not personal**	**Increases Work-Work interruptions**	**1**	**Work Boundary Protector**

204	**Closing non-work tabs on the laptop while working leaving work tabs open**	**Increases Work-Work interruptions**	**2**	**Work Boundary Protector**
			Frequency = 3	
			Participants = 2/4	
			Overall total = 9	
	Type of behaviour: General technology usage			
205	**Screen emails before answering e.g decide if it is urgent or not and if not leave it for later**	**Reduces Nonwork-Work interruptions**	**2**	**Moderate Manager**
206	**'Training' people not to expect a response on weekends or evenings**	**Reduces Nonwork-Work interruptions**	**2**	**Moderate Manager**
207			**Frequency = 2**	
			Participants = 1/4	
	Set email checking times: morning, lunch time and end of work day. Don't check emails outside of these times	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
208	**Sometimes responding to emails and phone calls out of working hours but other times not doing to train people not to expect a response**	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
209	**Not allowing 'goofing around' to impact on work time e.g playing computer games**	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
210	**Avoiding spending a lot of time on social media as it is a waste of time**	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
			Frequency = 4	

			Participants = 1/4	
211	Choosing not to use Facebook during work	Reduces Nonwork-Work interruptions	4	Work Boundary Protector
			Frequency = 1	
			Participants = 1/4	
			Overall total = 7	
212	Getting someone else to check emails	Reduces Work-Nonwork interruptions	1	Family Boundary Protector
213	Letting calls go to voicemail in the evening	Reduces Work-Nonwork interruptions	2	Family Boundary Protector
214	Sending short emails to let people know that they will respond in greater depth by a certain time/date	Reduces Work-Nonwork interruptions	2	Family Boundary Protector
			Frequency = 3	
			Participants = 2/4	
215	Allowing the inbox to get fuller and look at it later	Reduces Work-Nonwork interruptions	2	Moderate Manager
216	Refusing to give 'knee-jerk reactions' don't respond to communications immediately unless it is necessary	Reduces Work-Nonwork interruptions	2	Moderate Manager
			Frequency = 2	
			Participants = 1/4	
217	Moving towards putting email slots in during the day to prevent checking all day	Reduces Work-Nonwork interruptions	1	Strong Integrator
			Frequency = 1	

			Participants = 1/4	
218	**Turning off alerts on items of technology**	**Reduces Work-Nonwork interruptions**	**1**	**Strong Segmentor**
219	**Using out of office responses to manage customer expectations**	**Reduces Work-Nonwork interruptions**	**2**	**Strong Segmentor**
220	**Switching the technology off so that there is no link to work at all**	**Reduces Work-Nonwork interruptions**	**4**	**Strong Segmentor**
			Frequency = 3	
			Participants = 3/4	
			Overall total = 9	
221	**Tablet primarily for personal use, but also has work emails set up on it**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
222	**Smartwatch alerts communicate that there is something to attend to but don't feel disrupted by this**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
223	**Has a tablet for personal use but has emails set up on it for work**	**Increases Work-Nonwork interruptions**	**2**	**Work Boundary Protector**
			Frequency = 3	
			Participants = 2/4	
224	**Smartwatch messages coming through from work at 10.30pm on Saturday**	**Increases Work-Nonwork interruptions**	**3**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 4	
225	**Using diary to schedule interruptions to another**	**Reduces both (segmentation)**	**1**	**Moderate Manager**

	time reducing need for an immediate response			
226			**Frequency = 1**	
			Participants = 1/4	
	Having separate email accounts	**Reduces both (segmentation)**	**1**	**Strong Segmentor**
227	**Having separate work and nonwork email accounts**	**Reduces both (segmentation)**	**2**	**Strong Segmentor**
228	**Having different email accounts for work and personal**	**Reduces both (segmentation)**	**3**	**Strong Segmentor**
229	**Using different email accounts for work and non-work**	**Reduces both (segmentation)**	**4**	**Strong Segmentor**
			Frequency = 4	
			Participants 4/4	
230	**Using different calendars for work and non-work**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
231	**Choosing whether or not to respond to emails based on their source**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
232	**Having separate dropbox, email, calendars, contact lists, everything is separate**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
233	**Filters set up so that emails from different sources go into different folders**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
234	**Sharing calendar with clients and colleagues so that they can see when available and when not**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
235	**Having different emails for different types of work and personal**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
236	**Installing a video doorbell to gatekeep potential interruptions from people**	**Reduces both (segmentation)**	**3**	**Family Boundary Protector**

237	**Pulling separate table away so not sitting in front of work computer when watching TV on personal computer**	**Reduces both (segmentation)**	**4**	**Family Boundary Protector**
			Frequency = 8	
			Participants = 4/4	
238	**Having separate email accounts**	**Reduces both (segmentation)**	**2**	**Strong Integrator**
239	**Having the same account but with filters so that they are filtered into different folders**	**Reduces both (segmentation)**	**4**	**Strong Integrator**
			Frequency = 2	
			Participants = 2/4	
			Overall total = 15	
240	**Having a range of email accounts and using them for a combination of work and nonwork**	**Increases both (integration)**	**4**	**Moderate Manager**
			Frequency = 1	
			Participants = 1/4	
241	**Having one email inbox for work and personal emails**	**Increases both (integration)**	**1**	**Strong Integrator**
242	**Ignoring calls and texts to answer them later, but waiting creates frustration and difficulty switching off**	**Increases both (integration)**	**2**	**Strong Integrator**
243	**Syncing devices e.g laptop, Smartphone, tablet so work/non-work is available on all devices**	**Increases both (integration)**	**3**	**Strong Integrator**
244	**Switching between using laptop and Smartphone to respond**	**Increases both (integration)**	**3**	**Strong Integrator**

	to messages quickly and more easily			
245	**Having lots of tabs open while working, Facebook LinkedIn, Twitter, webpages etc**	**Increases both (integration)**	**3**	**Strong Integrator**
246	**Having the same email account for work and non-work**	**Increases both (integration)**	**3**	**Strong Integrator**
247	**Having the same social media accounts for work and non-work**	**Increases both (integration)**	**3**	**Strong Integrator**
248	**Having the same email address for work and personal**	**Increases both (integration)**	**4**	**Strong Integrator**
			Frequency = 8	
			Participants = 4/4	
249	**Receiving email alerts via Smartwatch**	**Increases both (integration)**	**3**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 10	
250	**Using diary to schedule interruptions to another time reducing need for an immediate response**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
251	**Screen emails before answering e.g decide if it is urgent or not and if not leave it for later**	**Reduces Work-Work interruptions**	**2**	**Moderate Manager**
252	**Allowing the inbox to get fuller and look at it later**	**Reduces Work-Work interruptions**	**2**	**Moderate Manager**
253	**Refusing to give 'knee-jerk reactions' don't respond to communications immediately unless it is necessary**	**Reduces Work-Work interruptions**	**2**	**Moderate Manager**
			Frequency = 4	

			Participants = 2/4	
254	**Set email checking times: morning, lunch time and end of work day. Don't check emails outside of these times**	**Reduces Work-Work interruptions**	**2**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 5	
256	**Receiving email alerts via Smartwatch**	**Increases Work-Work interruptions**	**3**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
257	**Having lots of tabs open while working, Facebook LinkedIn, Twitter, webpages etc 2**	**Increases Work-Work interruptions**	**3**	**Strong Integrator**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 2	
	Type of behaviour: Non-technology based behaviours			
258	**Creating a time frame with which to complete specific work tasks (focus on one task at a time)**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Segmentor**
259	**Focussing on one thing at a time and doing none work things during breaks**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Segmentor**

260	**Setting targets and only focussing energy on those until they are complete**	**Reduces Nonwork-Work interruptions**	**1**	**Strong Segmentor**
261	**Avoiding 'idle chitchat' during work time**	**Reduces Nonwork-Work interruptions**	**2**	**Strong Segmentor**
262	**Not being distracted by household tasks that need doing because not bothered by mess**	**Reduces Nonwork-Work interruptions**	**2**	**Strong Segmentor**
263	**Avoid asking people if they would like a coffee during work**	**Reduces Nonwork-Work interruptions**	**4**	**Strong Segmentor**
264	**Letting family know that they can't just pop round while working**	**Reduces Nonwork-Work interruptions**	**4**	**Strong Segmentor**
			Frequency = 7	
			Participants = 3/4	
265	**Having work paraphernalia e.g books in office**	**Reduces Nonwork-Work interruptions**	**2**	**Moderate Manager**
266	**Don't do low priority nonwork tasks during work time**	**Reduces Nonwork-Work interruptions**	**2**	**Moderate Manager**
267	**Not scheduling appointments when important work needs to be finished**	**Reduces Nonwork-Work interruptions**	**4**	**Moderate Manager**
			Frequency = 3	
			Participants = 2/4	
268	**Not accepting parcels for neighbours because its' easier because of working from home**	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
269	**Telling people that you have a meeting when you really have a yoga class**	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
270	**Finishing the task at hand first before**	**Reduces Nonwork-Work interruptions**	**2**	**Family Boundary Protector**

	responding to interruptions			
271	**Not answering the door during work**	**Reduces Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
272	**Trying to replicate an office space e.g book cases and a desk to get into work mode**	**Reduces Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
273	**Keeping work paraphernalia in the office area to create psychological conditions for work, to reduce distractions**	**Reduces Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
			Frequency = 6	
			Participants = 3/4	
274	**Going from working in the lounge to creating a separate office space to reduce distractions from child**	**Reduces Nonwork-Work interruptions**	**4**	**Strong Integrator**
			Frequency = 1	
			Participants = 1/4	
275	**Having very few hobbies/out of work activities**	**Reduces Nonwork-Work interruptions**	**1**	**Work Boundary Protector**
276	**Having a routine to get into work e.g reading news, putting music on to build into work mode**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
277	**Not engaging in out of work activities**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
278	**Getting angry with people who interrupt**	**Reduces Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
			Frequency = 4	
			Participants = 2/4	
			Overall total =	

			21	
279	**Taking time off on days not well enough to work due to long term illness**	**Increases Nonwork-Work interruptions**	**1**	**Family Boundary Protector**
280	**Having an extended lunch break to go to a yoga class**	**Increases Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
281	**Getting repairs done on the house during work time e.g guttering cleaned**	**Increases Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
282	**Scheduling the day around the kids, taking and picking up from school**	**Increases Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
283	**Running errands for family because of being based at home**	**Increases Nonwork-Work interruptions**	**2**	**Family Boundary Protector**
284	**Doing laundry and cleaning/tidying in gaps during the work day**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
285	**Going to Doctors appointments during work time**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
286	**Filling the dishwasher during work time**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
287	**Attending appointments during work time**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
288	**Planning in advance what nonwork tasks could be 'squeezed in' to work time based on schedule**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
289	**Doing household tasks during natural break times**	**Increases Nonwork-Work interruptions**	**3**	**Family Boundary Protector**
290	**Completing life tasks during work time e.g getting car serviced**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
291	**Landlord calling round to make checks and do repairs**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**

292	**Take a load to the laundrette to make personal life easier**	**Increases Nonwork-Work interruptions**	**4**	**Family Boundary Protector**
			Frequency = 14	
			Participants = 4/4	
293	**Collecting child early from school due to illness**	**Increases Nonwork-Work interruptions**	**2**	**Strong Segmentor**
294	**Responding to phone calls from partner to do home based tasks while working**	**Increases Nonwork-Work interruptions**	**3**	**Strong Segmentor**
295	**Doing laundry to have a break**	**Increases Nonwork-Work interruptions**	**4**	**Strong Segmentor**
			Frequency = 3	
			Participants = 3/4	
296	**Doing online shopping and laundry during work**	**Increases Nonwork-Work interruptions**	**1**	**Work Boundary Protector**
297	**Answering door to collect parcels**	**Increases Nonwork-Work interruptions**	**2**	**Work Boundary Protector**
298	**Being supportive e.g speaking on phone to friend with cancer**	**Increases Nonwork-Work interruptions**	**3**	**Work Boundary Protector**
299	**Collecting grandchildren from school due to request from daughter**	**Increases Nonwork-Work interruptions**	**3**	**Work Boundary Protector**
			Frequency = 4	
			Participants 3/4	
300	**Going to the supermarket during lunchtime**	**Increases Nonwork-Work interruptions**	**1**	**Moderate Manager**
301	**Being responsive to partners needs due to illness, lending a hand when needed**	**Increases Nonwork-Work interruptions**	**2**	**Moderate Manager**

302	**Going shopping to have a break from work**	**Increases Nonwork-Work interruptions**	**2**	**Moderate Manager**
303	**Responding to emergencies such as a break in to property, need to fix and secure property**	**Increases Nonwork-Work interruptions**	**2**	**Moderate Manager**
304	**Helping out with partner's elderly parents**	**Increases Nonwork-Work interruptions**	**2**	**Moderate Manager**
305	**Taking care of sick child while working at home**	**Increases Nonwork-Work interruptions**	**3**	**Moderate Manager**
			Frequency = 6	
			Participants = 3/4	
306	**Looking after pets during work time**	**Increases Nonwork-Work interruptions**	**1**	**Strong Integrator**
307	**Working in the lounge area even though there is an office**	**Increases Nonwork-Work interruptions**	**1**	**Strong Integrator**
308	**Caring for mother with long term health condition**	**Increases Nonwork-Work interruptions**	**2**	**Strong Integrator**
309	**Helping out with grandmother who lives in local area**	**Increases Nonwork-Work interruptions**	**2**	**Strong Integrator**
310	**Picking up partner's children from school**	**Increases Nonwork-Work interruptions**	**3**	**Strong Integrator**
311	**Popping round to grandparents to see if they need support**	**Increases Nonwork-Work interruptions**	**3**	**Strong Integrator**
312	**Having a chat with partner during work time**	**Increases Nonwork-Work interruptions**	**3**	**Strong Integrator**
313	**Doing laundry and ironing to have a break**	**Increases Nonwork-Work interruptions**	**3**	**Strong Integrator**
314	**Responding to needs of chronically ill partner e.g visits to hospital,**	**Increases Nonwork-Work interruptions**	**3**	**Strong Integrator**

	doctors, emergency appointments			
315	**Preferring to focus on work, but being disrupted by child who is at home while working**	**Increases Nonwork-Work interruptions**	**4**	**Strong Integrator**
			Frequency = 10	
			Participants = 4/4	
			Overall total = 37	
316	**Having set working hours from 7.00am until 5.00pm to keep consistency**	**Reduces Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
317	**Asking partner to help organise diary**	**Reduces Work-Nonwork interruptions**	**2**	**Work Boundary Protector**
318	**Asking partner for help to deal with workload**	**Reduces Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
319	**Trying to stop working from 9.00am until 9.00pm**	**Reduces Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
320	**Employing a separate company to deal with phone calls to reduce communication load**	**Reduces Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
			Frequency = 5	
			Participants = 3/4	
321	**Stick to the plan in the diary e.g if it is to be done tomorrow, don't do it today**	**Reduces Work-Nonwork interruptions**	**1**	**Moderate Manager**
322	**Making a conscious effort to not work during nonwork time**	**Reduces Work-Nonwork interruptions**	**1**	**Moderate Manager**
323	**Planning well in advance to reduce the number of 'surprises' that could become interruptions**	**Reduces Work-Nonwork interruptions**	**2**	**Moderate Manager**

324	**Deciding on whether to act on an interruption based on how urgent it is e.g responding to a sick animal**	**Reduces Work-Nonwork interruptions**	**2**	**Moderate Manager**
325	**Letting people know that even though I work from home, I'm not continuously available**	**Reduces Work-Nonwork interruptions**	**2**	**Moderate Manager**
326	**Taking Monday off if working on the weekend**	**Reduces Work-Nonwork interruptions**	**2**	**Moderate Manager**
327	**Blocking out times for nonwork and not working during that time**	**Reduces Work-Nonwork interruptions**	**3**	**Moderate Manager**
			Frequency = 7	
			Participants = 3/4	
328	**Stopping work when partner comes home. Partners return is symbolic of work ending**	**Reduces Work-Nonwork interruptions**	**3**	**Strong Segmentor**
329	**Going from the office cabin to the house for break times**	**Reduces Work-Nonwork interruptions**	**3**	**Strong Segmentor**
330	**Blocking time out, 'weekends are weekends' the 'evenings are mine'**	**Reduces Work-Nonwork interruptions**	**4**	**Strong Segmentor**
			Frequency = 3	
			Participants = 2/4	
331	**Physically removing self from house to switch off**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
332	**Physically removing self from work space and immediate work area to switch off from work (getting out of the house)**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**

333	**Physically closing the door on the office when leaving work**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
334	**Feeling uncomfortable about the way the boundary is being managed so seeking out information to find ways to change e.g through books**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
335	**Going out to a coffee shop during breaks to get a change of scenery and switch off from work**	**Reduces Work-Nonwork interruptions**	**1**	**Family Boundary Protector**
336	**Choosing not to work beyond certain hours**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
337	**Being productive and focussing on work during work time so that it doesn't leak into nonwork time**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
338	**Setting a time for work and not allowing it to 'bleed' in to nonwork**	**Reduces Work-Nonwork interruptions**	**2**	**Family Boundary Protector**
339	**Thinking it is unhealthy to work all hours, so refusing to do it**	**Reduces Work-Nonwork interruptions**	**3**	**Family Boundary Protector**
340	**Developing a better social life to reduce working late into the evening**	**Reduces Work-Nonwork interruptions**	**4**	**Family Boundary Protector**
			Frequencies = 10	
			Participants = 4/4	
			Overall total = 25	
341	**Thinking about work while playing with the children, not being completely 'present'**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
342	**During heavy work times, book time out from the family and let**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**

	them know not to disturb			
343	**Jumping into conversations about work after work time**	**Increases Work-Nonwork interruptions**	**1**	**Work Boundary Protector**
344	**Giving up hobbies to focus more time on work**	**Increases Work-Nonwork interruptions**	**2**	**Work Boundary Protector**
345	**Prioritising work and adapting nonwork around it**	**Increases Work-Nonwork interruptions**	**2**	**Work Boundary Protector**
346	**Putting in more work hours than ever before**	**Increases Work-Nonwork interruptions**	**3**	**Work Boundary Protector**
347	**Starting work as soon as waking up and working late into the evening**	**Increases Work-Nonwork interruptions**	**4**	**Work Boundary Protector**
348	**Being completely committed to work and enjoying it so much feel like working all the time**	**Increases Work-Nonwork interruptions**	**4**	**Work Boundary Protector**
			Frequency = 8	
			Participants = 4/4	
349	**Setting aside an hour occasionally to do work planning in the evenings while children are 'running around'**	**Increases Work-Nonwork interruptions**	**1**	**Strong Segmentor**
350	**On occasion missing out on physical exercise (swimming) to finish off work during a deadline**	**Increases Work-Nonwork interruptions**	**1**	**Strong Segmentor**
351	**Continuing to finish work tasks during nonwork, while wife is also finishing off work activities, to make the most of the nonwork time they can spend together afterwards (strategy to work efficiently at the same time)**	**Increases Work-Nonwork interruptions**	**1**	**Strong Segmentor**

352	**Keeping abreast of public health issues when I might be called in to work on a pandemic planning incident**	**Increases Work-Nonwork interruptions**	**2**	**Strong Segmentor**
353	**Prioritising work commitments around nonwork**	**Increases Work-Nonwork interruptions**	**3**	**Strong Segmentor**
			Frequency = 5	
			Participants = 3/4	
354	**Over committing and taking on too much work due to concern that I won't get work next time if I turn it down. This result in working overtime to get it finished**	**Increases Work-Nonwork interruptions**	**3**	**Family Boundary Protector**
355	**Working at weekends on occasion to meet an important deadline**	**Increases Work-Nonwork interruptions**	**4**	**Family Boundary Protector**
356	**Working longer hours to make big deadlines twice a year**	**Increases Work-Nonwork interruptions**	**4**	**Family Boundary Protector**
			Frequency = 3	
			Participants = 2/4	
357	**Working harder during times when there is a heavier workload**	**Increases Work-Nonwork interruptions**	**1**	**Moderate Manager**
358	**Not engaging in hobbies to do some extra work during very busy periods of work**	**Increases Work-Nonwork interruptions**	**2**	**Moderate Manager**
			Frequency = 2	
			Participants = 2/4	
359	**The longer the time spent working from home the more the working hours increase**	**Increases Work-Nonwork interruptions**	**1**	**Strong Integrator**

360	**Planning to take time out but if workload is too high, don't take it**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
361	**Putting in extra work hours to get work completed**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
362	**Cancelling nonwork activities if work isn't completed**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
363	**Working at the weekends when there is nothing else to do**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
364	**Avoiding taking time off because the work will still be there when I get back**	**Increases Work-Nonwork interruptions**	**2**	**Strong Integrator**
			Frequency = 6	
			Participants 2/4	
			Overall total = 24	
365	**Clumping tasks together 'semantically' to reduce cognitive load**	**Reduces both (segmentation)**	**1**	**Strong Integrator**
366	**Working in the spare room during the day**	**Reduces both (segmentation)**	**4**	**Strong Integrator**
367			**Frequency = 2**	
			Participants = 2/4	
	Having a separate office space for work and not going in there when it isn't work	**Reduces both (segmentation)**	**1**	**Work Boundary Protector**
368	**Wife buying a special notebook to help segment work and nonwork tasks**	**Reduces both (segmentation)**	**2**	**Work Boundary Protector**
369	**Having a separate office space**	**Reduces both (segmentation)**	**3**	**Work Boundary Protector**
370	**Wearing smart casual clothes for work**	**Reduces both (segmentation)**	**3**	**Work Boundary Protector**
			Frequency = 4	

			Participants = 3/4	
371	**Having a separate office space**	**Reduces both (segmentation)**	**1**	**Moderate Manager**
372	**Clumping big activities together such as travelling abroad for work and going to a conference while there to save extra travel time**	**Reduces both (segmentation)**	**2**	**Moderate Manager**
373	**Spending whole days on work followed by whole days on non-work**	**Reduces both (segmentation)**	**2**	**Moderate Manager**
374	**Closing office door when working**	**Reduces both (segmentation)**	**2**	**Moderate Manager**
375	**Spending up to 10 days working solidly and then spending several days doing no work at all**	**Reduces both (segmentation)**	**2**	**Moderate Manager**
376	**Working in the home office during the day**	**Reduces both (segmentation)**	**3**	**Moderate Manager**
377	**Only using separate office space and makeshift space for work, not doing so in the rest of the house**	**Reduces both (segmentation)**	**3**	**Moderate Manager**
378	**Wearing smart clothes to get into the right mindset for work**	**Reduces both (segmentation)**	**3**	**Moderate Manager**
379	**Using the basement as a separate office space**	**Reduces both (segmentation)**	**4**	**Moderate Manager**
			Frequency = 9	
			Participants 4/4	
380	**Planning work and nonwork tasks a week ahead at a time**	**Reduces both (segmentation)**	**1**	**Strong Segmentor**
381	**As work and family commitments have increased cutting out more unnecessary distractions**	**Reduces both (segmentation)**	**1**	**Strong Segmentor**
382	**Intention to create set working times**	**Reduces both (segmentation)**	**1**	**Strong Segmentor**

383	**Having a separate office space**	**Reduces both (segmentation)**	**2**	**Strong Segmentor**
384	**Using an office cabin in the garden**	**Reduces both (segmentation)**	**3**	**Strong Segmentor**
385	**Converted a bedroom to an office to work in**	**Reduces both (segmentation)**	**4**	**Strong Segmentor**
386	**Working in the work cabin in the garden**	**Reduces both (segmentation)**	**4**	**Strong Segmentor**
			Frequency = 7	
			Participants = 4/4	
387	**Wearing formal clothes to get into work mode**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
388	**Using a separate office for work**	**Reduces both (segmentation)**	**1**	**Family Boundary Protector**
389	**Wearing a work jacket to get into work mode**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
390	**Deliberately closing the office door while working**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
391	**Going from wearing casual clothes to wearing smart clothes for work**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
392	**Working in a space with a door that can be closed**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
393	**Having a separate office space to create a psychological distinction between work and nonwork**	**Reduces both (segmentation)**	**2**	**Family Boundary Protector**
394	**Setting specific working hours, sticking to 9-5 as much as possible**	**Reduces both (segmentation)**	**3**	**Family Boundary Protector**
395	**Working in lounge due to lack of space but also having a separate desk and computer for work**	**Reduces both (segmentation)**	**4**	**Family Boundary Protector**
			Frequency = 9	

			Participants = 4/4	
			Overall total = 31	
396	**Doing work things during nonwork time and nonwork things in work time**	**Increases both (integration)**	**1**	**Moderate Manager**
397	**Alternating between work and non-work tasks throughout the day**	**Increases both (integration)**	**2**	**Moderate Manager**
398	**Taking time to go to child's school play and making up for it by working later into the evening**	**Increases both (integration)**	**3**	**Moderate Manager**
399	**Conducting online meetings at night to accommodate colleagues in different time zones and having Monday morning off work instead**	**Increases both (integration)**	**3**	**Moderate Manager**
			Frequency = 4	
			Participants = 3/4	
400	**Taking time out to do nonwork things during work time and working later to compensate**	**Increases both (integration)**	**3**	**Strong Segmentor**
			Frequency = 1	
			Participants = 1/4	
401	**Shuffling work times around such as to weekends to accommodate interruptions that come up and are dealt with immediately**	**Increases both (integration)**	**1**	**Strong Integrator**
402	**Splitting the day into 'chunks' of time based**	**Increases both (integration)**	**1**	**Strong Integrator**

	on work and nonwork activity chunks			
403	**Using desk in bedroom to work**	**Increases both (integration)**	**2**	**Strong Integrator**
404	**Having an extended lunch break and then working later to make up for it**	**Increases both (integration)**	**2**	**Strong Integrator**
405	**Work and personal life 'flow into one'**	**Increases both (integration)**	**2**	**Strong Integrator**
406	**Wearing the same clothes for work and personal time**	**Increases both (integration)**	**2**	**Strong Integrator**
			Frequency = 6	
			Participants = 2/4	
407	**'Coalescing' thoughts on the school run drive, thinking about what needs to be done and planning**	**Increases both (integration)**	**2**	**Family Boundary Protector**
408	**Going to the beach on a Tuesday when it is quieter and making up the time on Saturday afternoon**	**Increases both (integration)**	**2**	**Family Boundary Protector**
409	**Sitting on the sofa to work due to having no office to work from**	**Increases both (Integration)**	**3**	**Family Boundary Protector**
410	**Alternating between work and non-work tasks throughout the day**	**Increases both (integration)**	**4**	**Family Boundary Protector**
			Frequency = 4	
			Participants = 3/4	
			Overall total = 15	
411	**Making a 'realistic' list of what needs to be done and then prioritising tasks from the list to decide what is**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**

	done first. Breaking the list into smaller chunks			
412	**Creating a time-frame with which to complete specific work tasks (focus on one task at a time)**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**
413	**Setting targets and only focussing energy on those until they are complete**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**
414	**Creating a time frame with which to complete specific work tasks (focus on one task at a time)**	**Reduces Work-Work interruptions**	**1**	**Strong Segmentor**
415	**Avoiding 'idle chitchat' during work time**	**Reduces Work-Work interruptions**	**2**	**Strong Segmentor**
			Frequency = 5	
			Participants = 2/4	
416	**Finishing the task at hand first before responding to interruptions**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
417	**Stick to the plan in the diary e.g if it is to be done tomorrow, don't do it today**	**Reduces Work-Work interruptions**	**1**	**Moderate Manager**
			Frequency = 2	
			Participants = 1/4	
418	**Finishing the task at hand first before responding to interruptions**	**Reduces Work-Work interruptions**	**2**	**Family Boundary Protector**
			Frequency = 1	
			Participants = 1/4	
			Overall total = 8	

Appendix 6.7: The Frequencies of Reported Boundary Management Behaviours Related to Different Sources of Interruptions

Table 38 below shows the frequencies of reported boundary management behaviours related to different sources of interruptions.

Table 38: The Frequencies of Reported Boundary Management Behaviours Related to Different Sources of Interruptions

	Reduce Nonwork-work	**Increase Nonwork work**	**Reduce Work-nonwork**	**Increase Work-nonwork**	**Reduce both**	**Increase both**	**Reduce Work-work**	**Increase Work-work**
Smart phone	16	10	25	45	15	9	15	13
Laptop	8	5	3	9	7	3	13	9
Other Tech-nology	7	0	9	4	15	10	5	2
Non Tech-nology	21	37	25	24	31	15	8	0

The table above shows the frequencies of reported boundary management behaviours related to technology use and behaviours that are not related to technology use. Across all five of the boundary management categories smartphones were spoken about most frequently by the participants in relation to work-nonwork interruptions (45) but these were not talked about so much in relation to nonwork-work interruptions (10). This suggests that in this sample, smartphones may have been used to create more work-nonwork interruptions than other forms of technology and non-technology related interruptions. The highest frequency of reported behaviours related to non-technology, was behaviours that increased nonwork-work interruptions (37), indicating that in this dataset, non-technology based interruptions were more frequently discussed in relation to creating nonwork-work interruptions than technology. It may be the case that telework specific interruptions, such as doing household chores during work time may be responsible for these additional interruptions. Overall, participants talked about smartphones most frequently related to work-nonwork interruptions, while non-technology based behaviours were more associated

with nonwork-work interruptions. This might suggest that smartphones, although creating boundary blurring in the sample, did not do so equally across both spheres, but were more significantly reported in work-nonwork.

Across all five categories, participants speak of behaviours using laptops that reduce work-work interrupting behaviours (13), indicating that in this dataset, behaviours such as turning off emails while working and checking emails only at certain times during the day, were strategies used to reduce the work-based interruptions that could occur during work time. So, although laptops were used in a way that created interruptions between spheres, the features of laptops may have been utilised by some participants in a way to actively reduce interruptions while working.

Appendix 6.8: The Frequencies of Reported Boundary Management Behaviours for Smartphones Related to the Five Boundary Management Categories

The frequencies of reported boundary management behaviours for smartphones related to the five boundary management categories were counted and these are presented in Table 39 below.

Table 39: The Frequencies of Reported Boundary Management Behaviours for Smartphones Related to the Five Boundary Management Categories

	Reduces Nonwork-work	Increases Nonwork-work	Reduces Work-nonwork	Increases Work-nonwork	Reduces both	Increases both	Reduces Work-work	Increase Work-work
Work Boundary Protector	2	2	3	8	0	1	1	2
Family Boundary Protector	6	8	8	6	4	0	2	0
Strong Segmentor	4	0	6	6	6	0	3	0
Strong Integrator	1	0	2	12	1	3	2	8
Moderate Manager	3	0	5	13	4	4	7	3

The participants in the Family Boundary Protector and Strong Segmentor categories discussed fewer behaviours (6 each) using smartphones that increased work-nonwork behaviours than the other groups (8-13). The Family Boundary Protector group participants talked more frequently about nonwork-work interruption behaviours (8) through smartphone use than the others, although these were still relatively low, indicating that although it might be expected that they would mention more frequently interruptions from nonwork-work, the brunt of the interruptions talked about were not related to smartphone use.

Overall the participants in the Strong Segmentor group talked about more behaviours related to smartphones that reduced interruptions (4 nonwork-work, 6 work-nonwork, 6 both, 3, work-work), so they were speaking about their engagement with their smartphones in a way that actively reduced interruptions. On the other hand, the participants in the Strong Integrator group talked more frequently about using smartphones in a way that increased work-nonwork interruptions (12) compared to nonwork-work (0). It might have been expected that they would have talked about these behaviours more equally considering their integrative style, but their discussed behaviours in relation to smartphones seems to suggest more work-nonwork interruptions than the other way. Participants in this group scored highly in interruptions in both spheres from the survey and it could be that their high levels of nonwork-work interruptions may be related to other non-technology based factors and that the smartphone provides a tool enabling interruptions from work more than nonwork. The Strong Integrator group also talked more frequently about engaging in work-work interruption behaviours via smartphone (8) than any other group.

To summarise, the frequencies of reported smartphone usage behaviours in this sample, represent the categorised boundary management style of the groups. The boundary category that the participants were placed in were based on their scores in the survey and the behaviours that they talked about reflected their scoring in the survey, for example the participants in the Strong Segmentor group talked very little about engaging in behaviours that increased interruptions via their smartphones. Put another way, the total frequencies of interruptions discussed by participants in each category are reported in the way that one might expect, based on their survey scores. This suggests that in this sample the qualitative data reflected their quantitative data in relation to reported boundary interruptions.

Overall, the participants talked more frequently about engaging in work-nonwork interruption behaviours through smartphones than any other technology or non-technology based source. In addition, smartphones were reportedly used by the participants in a way that blurred the boundary between work and nonwork, but this is reported by participants in some groups more than others (Strong Integrators, Moderate Managers and Work-Boundary Protectors). Participants in the categories of Strong Segmentor and Family Boundary Protector, tend to talk more about active strategies that they employed to prevent boundary blurring via smartphones.

Appendix 6.9: The Frequencies of Reported Boundary Management Behaviours for Laptops Related to the Five Boundary Management Categories

The frequencies of reported boundary management behaviours for laptops related to the five boundary management categories are presented in Table 40 below.

Table 40: The Frequencies of Reported Boundary Management Behaviours for Laptops Related to the Five Boundary Management Categories

	Reduce Nonwork-work	**Increase Nonwork-work**	**Reduce Work-nonwork**	**Increase Work-nonwork**	**Reduce both**	**Increase both**	**Reduce Work-work**	**Increase Work-work**
Work Boundary Protector	5	3	0	3	0	2	1	3
Family Boundary Protector	0	0	1	0	2	0	1	0
Strong Segmentor	1	0	2	1	2	0	4	1
Strong Integrator	2	0	0	3	1	1	4	4
Moderate Manager	0	1	0	2	2	0	3	1

Overall, participants across all boundary management categories talked less about laptops in relation to boundary management interruptions in response to the interview questions, than they did about smartphones. Although there are fewer references to laptops than smartphones, a similar loose pattern can be seen with work-nonwork interruptions talked

about more frequently by participants in the Work Boundary Protector (3) and Strong Integrator groups (3). Interestingly, laptops were talked most frequently in relation to behaviours that reduced work-work interruptions, meaning that strategies to prevent interruptions while working might be employed to ensure focus on work.

Appendix 6.10: The Frequencies of Reported Boundary Management Behaviours for General Technology Usage Related to the Five Boundary Management Categories

The frequencies of reported boundary management behaviours for general technology usage related to the five boundary management categories are presented in Table 41 below.

Table 41: The Frequencies of Reported Boundary Management Behaviours for General Technology Usage Related to the Five Boundary Management Categories

	Reduces Nonwork-work	**Increase Nonwork-work**	**Reduces Work-nonwork**	**Increase Work-nonwork**	**Reduce both**	**Increase both**	**Reduce Work-work**	**Increase Work-work**
Work Boundary Protector	1	0	0	3	0	0	0	0
Family Boundary Protector	4	0	3	1	8	1	1	1
Strong Segmentor	0	0	3	0	4	0	0	0
Strong Integrator	0	0	1	0	2	8	0	1
Moderate Manager	2	0	2	0	1	1	4	0

Frequencies of behaviours discussed in the interviews related to general technology use and the five boundary management categories were counted. General technology usage refers to technology that was neither smartphone or laptop specific and when it was unclear what hardware the comments were related to, for example if they were talking about emails but it was unclear what device they used to check emails. No noticeable patterns were found in this frequency analysis and this might be due to there being fewer quotes in this category and also because it was non-specified technology, so there were fewer connections to draw.

The frequencies of reported boundary management behaviours for non-technology based behaviours related to the five boundary management categories are displayed in the table below.

Appendix 6.11 The Frequencies of Reported Boundary Management Behaviours for Non-Technology Based Behaviours Related to the Five Boundary Management Categories

Table 42: The Frequencies of Reported Boundary Management Behaviours for Non-Technology Based Behaviours Related to the Five Boundary Management Categories

	Reduce Nonwork-work	Increase Nonwork-work	Reduce Work-nonwork	Increase Work-nonwork	Reduce both	Increase both	Reduce Work-work	Increase Work-work
Work Boundary Protector	4	4	4	8	4	0	0	0
Family Boundary Protector	5	14	10	3	9	4	1	0
Strong Segmentor	7	3	3	5	7	1	5	0
Strong Integrator	1	9	10	6	2	6	0	0
Moderate Manager	3	6	7	2	9	3	2	0

The participants in the Strong Segmentor group talked more frequently about engaging in more non-technology related behaviours that decreased work-work interruptions (5) than participants in the other categories. Overall, participants in this group talked more about behaviours that reduced, rather than increased non-technology based interruptions.

Participants in the Work Boundary Protector category discussed more frequently behaviours that created more work-nonwork interruptions (8) and reduced nonwork-work (4) while the Family Boundary Protector group talked more frequently about behaviours that increased nonwork-work interruptions (14), and reduced work-nonwork (10). The participants in these two groups discussion of their boundary management behaviours reflected their scores in the

survey and suggests that not only did they engage in positive behaviours to increase interruptions, but they also engaged in behaviours that reduce the alternative interruptions.

None of the participants reported non-technology based behaviours that increased work-work interruptions. This could be due to the lack of opportunity to do so, because non-technology based work-work interruptions in traditional office environments might be activities such as being interrupted by a colleague for example and there is less chance of this in a telework environment. If these interruptions do occur, they are more likely to be through technology such as phone calls with colleagues, in a telework context.

Appendix 6.12: The Frequencies of Reported Boundary Management Behaviours Related to Technology and Non-Technology Based Sources

The frequencies of reported boundary management behaviours related to technology and non-technology based sources are presented in Table 43 below.

Table 43: The Frequencies of Reported Boundary Management Behaviours Related to Technology and Non-Technology Based Sources

	Reduce Nonwork-work	**Increase Nonwork-work**	**Reduce Work-nonwork**	**Increase Work-nonwork**	**Reduce both**	**Increase both**	**Reduce Work-work**	**Increase Work-work**
Tech	31	14	36	58	37	21	33	24
Non-tech	20	36	34	24	31	14	8	0

When assessing the frequencies between behaviours related to technology use and non-technology use in all groups, overall, interruptions from work-nonwork related to technology (58) were the most commonly discussed. In relation to behaviours that did not involve technology use, nonwork-work interruptions (36) were discussed the most frequently overall. This suggests that in this dataset, technology use may be more heavily related to work-nonwork interruptions, but non-technology based behaviours more related to nonwork-work interruptions.