The Right to Disconnect:

A Quantitative study on the Associations between Employee Digital Wellbeing, Employee Engagement and Job Satisfaction

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ABSTRACT

Today's society is marked by the widespread use and quick integration of mobile devices into daily life. The facilitated connectivity of mobile devices such as smartphones leave people in an 'always on' state and feel the obligation to be constantly available and connected. Digital wellbeing is a concept that encapsulates how individuals navigate the drawbacks and benefits of 24/7 connectivity as a result of mobile media. The phenomenon is based on the idea that person-, context- and device-specific factors can influence one's experience with digital media and can have external effects. Through a digital wellbeing lens, this study sets out to explore the effect of life-work interferences through smartphone use and digital stress components (availability stress and connection overload) on employee engagement and job satisfaction. A survey was sent out to 168 full-time white-collar employees. The results were able to partially confirm one of the hypotheses; that work interrupting nonwork behaviours enabled through smartphone use are a significant predictor of Vigour (an employee engagement dimension). Regarding the remaining hypotheses, no other significant association between work-life interferences and job satisfaction in addition the moderation effect of perceived organisational support (POS) was not significant. However, POS was found to be a significant predictor of employee engagement and job satisfaction. For digital stress, the results concluded that there was no association between availability stress and connection overload and the employee outcomes; engagement or job satisfaction. The findings suggest that maintaining boundaries between work and life on mobile devices is essential as it can affect one's engagement at work. Finally, the results highlight the importance of perceived organisational support influence with regards to employee outcomes.

KEYWORDS: *Digital Wellbeing, Smartphone use, Employees, Employee Engagement, Job Satisfaction*

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1 Introduction

The introduction of new technologies can alter the ways in which society functions (Melewar & Smith, 2003). We live in a world of fast paced changes, and this is indeed increasingly accelerated as new technologies emerge: recently as a new record, the OpenAI tool ChatGPT achieved 100 million active users in just two months after release (Hu, 2023). These quick technological changes imply that usually legislation and in general the analysis of the repercussions in society can only be made for afterwards. Technological factors, however, are not the only ones causing these kinds of changes, but also political, social and environmental occurrences as well. Also, recently, the COVID-19 pandemic altered society in many ways, one of them being the way of working (Ozimek, 2020).

The pandemic and associated lockdowns changed the working environment, going from an all-physical presence to also a virtual one (Surma et al., 2021). The shift has altered the manners in which people interact and has had many drawbacks and controversies surrounding employee outcomes in the workplace. This is a result of work-isolation and burn-out brought on by the rapid and unforeseen digital and physical changes to the work environment (Ozimek, 2020; Subel, et al., 2020; Surma, et al., 2021) while the consequences of these rapid changes have only recently started to be investigated. On top of these unforeseen changes, today's society is already heavily marked by the widespread use and quick integration of mobile devices into daily life. These devices, supported by advanced technology, allow individuals, groups, and institutions to engage in social interactions and activities without being restricted by time and location (Vanden Abeele & Nguyen, 2022). This leads to constant connectivity and a state of 'always-on' (Nguyen, 2021). These states of constant availability create an unease with regards to the ubiquitous presence of connective media devices in our everyday surroundings (Hesselberth, 2017). In order to avoid the drawbacks, individuals attempt to intervene, through reducing screen times for example, but oftentimes fail (Jiang, 2020; Vanden Abeele, 2021). Illustrating how attempting to navigate the effects of our relationship with mobile connectivity is not an easy task.

Relatively new concepts such as *digital wellbeing,* have emerged referring to how people experience the benefits and burdens of 24/7 connectivity (Vanden Abeele, Nguyen, 2022). Despite the many benefits of constant connectivity and availability there may be (i.e. by connecting us to content, contacts and services without any time or more specifically, time constraints), studies have shown that individuals rarely ever disconnect (Vanden Abeele, De Wolf, & Ling, 2018). Smartphone screen time is about three hours per day, and five for heavier users (Deng et al., 2019). Furthermore, the use of smartphones has been associated with interference with work and studying, inducing negative emotions such as anxiety, and can lead to procrastination (Büchi, Festic & Latzer, 2019; Duke & Montag, 2017). Indeed, the use of digital media is often affiliated with negative psychological outcomes such as digital

stress. This concept refers to the stress derived from perceived demands of digital media use such as permanent connectivity, constant availability, connectivity and social pressure in adolescents and adults (Steele, Hall & Christofferson, 2019). These findings have been linked to combining the online self to the offline consciousness, mental health and wellbeing, meaning that the effects of digital media use do not disappear once individuals are no longer using the device (Reinecke, 2017). Research in this area has mostly focused on psychological effects on primarily young adults or adolescents and the relationship with general psychological outcomes such as anxiety, depression and loneliness (Hancock et al., 2022; Reinecke, 2017; Shensa et al., 2017). This study aims to extend on this knowledge by examining the notion in other contexts such as at work.

In the organisational research realm, constant connectivity promoted by mobile media use (such as laptops and smartphones) has been linked by a growing body of research to be detrimental to employee wellbeing (Ďuranová & Ohly, 2016; Schlachter et al., 2018). In fact, the use of mobile work devices restricts individuals from being able to disengage from work during their off-time (Büchler, Ter Hoeven & van Zoonen, 2020). Also in this scope, Butts, Becker and Bowell (2015) found that constant connectivity was associated with higher demands at work and causing conflict in employees' work-life balance resulting in an increase of work-related health issues, illustrating how not only can constant connectivity have direct effects on employees but also how they manage their surroundings. In fact, the growing constant availability and flexible work arrangements (e.g. working from home, hybrid working) have increased employee self-regulation of work and nonwork boundaries (Rothbard, Philips & Dumas, 2005; Kossek et al., 2012). Furthermore, Adisa and colleagues (2022) highlighted the negative impacts of the new working environment on employee boundary management as a result of COVID-19. They concluded that employees tend to engage in setting ‘micro-borders’ and other methods to create ‘controlled integration’ of work-life balance. This illustrates how some employees are engaging in self-control behaviours as a result of the work-from-home environment imposed by the events of the pandemic (Adisa et al., 2022). In the same way, the study highlights that employees that did not engage in these boundary setting behaviours were less flexible, and thus experienced more negative effects. The new environment in which the use of mobile digital devices has become more intense and has blurred the lines between work and life calls for more research into the potential effects of this constant connectivity on employees (Subel et al., 2020; Surma et al., 2021).

The increasing pervasiveness of smartphone use has also changed the landscape of work (Cheung, Lun & Wang, 2021). Studies have shown that smartphone use can lead to greater expectations with regards to employee availability after work-hours, which have been associated with poorer health and work outcomes (Derks & Bakker, 2014; Ter Hoeven et al., 2016; Van Laethem et al., 2018). As a result, researchers have explored the effects of smartphones on boundary management and the effects

these may have on employee outcomes as well. Smartphones further blur the boundaries between work and non-work spheres, as they promote connectivity, immediacy and availability (Derks et al., 2014; Derks & Bakker, 2014). In addition, smartphone use at work and its effects are often examined in relation to factors in the working environment such as supervisor support and organisational support. A plethora of studies indicates that employees that feel their organisation shows concern for them and their wellbeing tend to be more productive, experience less conflict between work-life domains and less effects as a result of smartphone use after-hours (Allen, Cho & Meier, 2014; Derks & Bakker, 2014; Derks et al., 2015, 2016), highlighting the importance of a supportive environment on boundary management, smartphone use and employee outcomes, all factors that can affect the wellbeing of employees.

It is clear that there is an interest in the developments of digital mobile media such as smartphones, the need for (dis)connectivity and its effects on employee wellbeing as well as boundary management and how organisational support influences the wellbeing and work-life balance. However, the studies discussed work-life interference and effects of digital media separately despite these boundary lines becoming more and more blurred as a result of mobile devices. Through the digital wellbeing framework, the integrated relationship between mobile media and boundary negotiations in the work context is acknowledged. Moreover, given the discussed effects of mobile media on work-life interferences (WLI) from the boundary theory perspective in addition to the effects of smartphone use on work-life balance and employee outcomes, further exploration into WLI through the digital wellbeing framework is called for. The current study aims to bridge this exact gap between disciplines that have touched upon the idea of digital wellbeing and (dis)connectivity (for example through WLI) and the digital wellbeing conceptual model discussed in order to further explore the effects of digital wellbeing on individuals in the work context; taking into consideration the person, the context and the device. This study will utilise the conceptual model of digital wellbeing proposed by Vanden Abeele (2021) to investigate the effects of digital wellbeing on employees. We will explore the extent to which work-home interference induced by smartphone use affects employee engagement and their job satisfaction. Additionally, whether context- and person- specific factors (perceived organisational support and level of digital stress, respectively) influences this relationship. Likewise, this study will aim to examine the association between digital stress and employee outcomes in an attempt to begin to fill the gap regarding exploring consequences of digital media use on employee wellbeing.

The research questions in this study are: "How does setting boundaries with smartphone use between work and life affect employee engagement and job satisfaction?" and "How does digital stress impact employee engagement and job satisfaction?".

Through exploring the effects of smartphone use during non-work hours on employee wellbeing this research could contribute to the ongoing debate regarding employee rights and the right to disconnect.

The discussion regards whether disconnectivity from work should be regulated on an individual or organisational level in addition to whether these rights should be enforced for organisations to abide by (Hesselberth, 2018). The investigation can add to the discussion by highlighting the importance of work-life balance through smartphone use, as well as the role that organisational support has in this relationship. In this regard, the study aims to provide further insight into society's relationship with mobile devices and ways in which it can be navigated to avoid poor digital wellbeing.

Concerning to the theoretical implications of employee wellbeing, given it has been a topic of interest to researchers due to its potential consequences at an individual (psychological or physical) and organisational level (increase in absenteeism, turnover and decline in engagement) (Danna & Griffin, 1999; Büchler, Hoeven & van Zoonen, 2020), this study can provide valuable insights into ways to improve employee experience at work. Nonetheless, the direct investigation into digital wellbeing of employees; that is how they navigate the advantages and constraints of digital media affect employees in the workplace is lacking. By further exploring the notion of *digital wellbeing* and (dis)connectivity, professionals can get additional insights about the struggles and how individuals as well as institutions can develop healthier habits in order to minimise the negative effects. Relevantly, the main theoretical implication of this study is that the relatively new conceptualisation of digital wellbeing will be put into practice to further test the way in which the intertwined relationship with mobile media and its effects can be explored under the umbrella of digital wellbeing in the work environment.

2 Literature Review

2.1 Digital Wellbeing

The term “digital wellbeing” is present in an array of literature; however, different disciplines and research traditions handle the term under different assumptions and definitions (Büchi, 2021). According to Büchi (2021), digital wellbeing concerns “individuals’ affect (e.g., positive emotions), domain satisfaction (e.g., one’s relationships or job), and overall life satisfaction in a social environment characterised by the constant abundance of digital media use options” (p.3; Büchi, 2021). It concerns studying the relationship between technology use and the wellbeing of an individual (Gui, Fasoli & Carradore, 2017). A condition of digital wellbeing is “individuals are able to channel digital media usage towards a sense of comfort, safety, satisfaction and fulfilment” (Gui, Fasoli, Carradore, 2017, p.166). These individuals that are able to “cope” with the potential side-effects of technology are considered digitally competent. There is a visible link here considering that being digitally competent has proven to have positive outcomes on wellbeing; as individuals suffer less stress and sense of being

overwhelmed by technology by being able to navigate it (Gui, Fasoli & Carradore, 2017). This definition is supported by Ryff and Singer (2006) stating that digital wellbeing pertains to the ability to utilise them as a means towards personal and professional goals (Gui, Fasoli & Carredore, 2017; Ryff & Singer, 2006). However, despite the definitions, digital wellbeing as a theoretical concept has only recently begun to be discussed in current literature and is far more complex than the previous definitions. Vanden Abeele (2021) set out to establish a definition and conceptual model that encapsulates the dynamic and complex nature of digital wellbeing.

According to Vanden Abeele (2021, p.938) "digital wellbeing is a subjective individual experience of optimal balance between the benefits and drawbacks obtained from mobile connectivity […] people achieve digital wellbeing when experiencing maximal controlled pleasure and functional support, together with minimal loss of control and functional impairment." This definition encapsulates the concept of digital wellbeing as it considers that connectivity gives rise to both problems and benefits, it also acknowledges the subjective, dynamic nature and fluctuating relationship as well as experiences with technology. Vanden Abeele (2021) proposed a digital wellbeing conceptual model that considers it as a dynamic system influenced by person-, device- and context-specific factors. The idea proposed is that our experiences with digital media do not come from our own making but as Vanden Abeele (2021) stresses, experiences are also heavily shaped and influenced by the devices in their material form, normative expectations, behaviours and rituals pertaining to specific social and situational contexts. This conceptual model is essential to the further understanding of the complexity of digital wellbeing in our world today as it highlights the need to avoid the cause-and-effect thinking surrounding the digital wellbeing discourse in the literature (Vanden Abeele, 2021).

The person-specific aspect of digital wellbeing refers to the idea that certain attributes specific to individuals for example someone's mood, can directly and indirectly affect the experiences of digital wellbeing (Vanden Abeele, 2021). Experiencing boredom in the workplace for example, depends on the temporary context (e.g. a specific task) which may cause people to find distractions in this case, online, which can result in reduced feelings of productivity (Mark, Iqbal, Czerwinski & Johns, 2014; 2015). In fact, Vanden Abeele (2021) points out that some psychological states have been directly related to digital wellbeing experiences as a result of digital connectivity. A person-specific factor that can heavily influence one's experience is digital stress (Vanden Abeele, 2021). According to Steele and colleagues (2020, p.16) digital stress refers to "the stress and anxiety that accompanies notifications and from the use of information and communication technologies enabled through mobile and social media.'' Digital stress is a person-specific factor as it is a subjective psychological, affective or behavioural response to specific (e.g., notifications) or class (e.g., digital media) of stimuli (Steele et al., 2020). Different individuals may react differently to the digital stimuli. For example, Hefner and Vorderer (2016) identified that individuals

may react differently to the same amount of notifications. A particular quantity of notifications may be acceptable to some individuals; however, this same amount may cause digital stress as a response for other people (Hefner & Vorderer, 2016). These different reactions can be attributed to a person's perceived coping resources in that context (Hall, 2020). This attribute of digital stress encapsulates the idea that digital wellbeing is a product of subjective factors as well as context.

Another factor to consider regarding digital wellbeing is its context-specific nature; it refers to how due to certain times, places or cultural differences boundaries may exist that can determine the way in which smartphones are used and therefore have an effect on individuals (Baron & af Segerstad, 2010). Vanden Abeele (2021) claims that clear boundaries being set in specific contexts for connectivity can impact the digital wellbeing experience. (Dis-)connectivity that is forced may be enjoyed or missed by individuals as well as can be perceived as meaningful or meaningless. However, in certain scenarios the borders of connectivity are not set and are often negotiated. Oftentimes digital connectivity is negotiated when it competes with personal goals and obligations, such as using social media while studying (Hofmann, Reinecke & Meier, 2016). In this scenario of studying, the person is weighing the rewards between social media and others (e.g., obtaining a degree or learning new skills), ultimately negotiating priorities at that moment (Vanden Abeele, 2021). Furthermore, other situations may require negotiating digital connectivity due to social group memberships or institutional contexts, for example in the workplace context. The social roles in groups and institutions may blur given the affordance of connectivity that allows the roles to take place irrespective of time and place (Vanden Abeele, 2021). As a result, people must balance and negotiate connectivity in compliance with the goals and obligations related to each role (Vanden Abeele et al., 2018). An example offered by Vanden Abeele and colleagues (2018) is a parent that is working who may have to negotiate whether replying to a work e-mail is urgent enough to be prioritised over spending quality time with their family. This is something that has only been enhanced over the years with the options of remote working (Vanden Abeele et al., 2018).

Institutional expectations regarding one's (dis-) connectivity can have implications such that one's digital wellbeing is dependent these set of expectations (Vanden Abeele, 2021). People may feel pressure from expectations regarding their availability in their groups and institutions and oftentimes, in institutional contexts, these expectations can come in the form of rules and policies (Licoppe & Smoreda, 2005; Hall & Baym, 2012). For example, remote working and contact after-hours in certain institutions are policies or expectations placed in that specific context (Piszczek, 2017). The rules and expectations are often perceived by employees as normative pressure to respond to emails during after-work hours which can result in "availability stress" (Steele, Hall & Christofferson, 2020). Steele (2020, p. 18) defined availability stress as the "distress (including guilt and anxiety) resulting from beliefs about others' expectations that the individual responds and be available by digital means." Additionally, availability

stress is considered a sub-concept of the Digital Stress phenomenon (Steele et al., 2020). This concept is essential when understanding digital wellbeing as it is an effect of mobile media use in the work context that can be experienced at different levels by users. For example, Thomee and colleagues (2010) found that availability demands predicted stress symptoms and depression among adult mobile users. Furthermore, Reinecke et al. (2017) recognised social pressure (e.g "My friends expect me to be constantly available," p.11) as a predictor of communication load among adolescents. Highlighting how stress of being constantly available can differ among individuals.

Digital Stress refers to the subjective experience of media use, as well as its consequences relative to a person's available coping resources. The notion was brought forth by Steele and colleagues (2020) in an attempt to disentangle mobile and media from the perceived stress associated with that use. According to Hall and colleagues (2021), digital stress is made up of four sub-constructs; availability stress, approval anxiety, fear of missing out (FOMO) and connection overload. In relation to digital wellbeing, two of the concepts, availability stress and connection overload, are briefly mentioned as possible context-specific factors that can affect one's experience with digital media. Similar to availability stress, connection overload is associated with "distress resulting from subjective experience of receiving excessive input from digital sources including notifications, text messages, posts etc." (Steele et al., 2020, p. 20) relating to one's personal experience with technology. Taking Vanden Abeele's (2021) conceptualisation of digital wellbeing, these experiences are shaped by the environment and available resources. As is the case with the office environment, certain norms and regulations such as the perceived expectation by employees to be always online can induce availability stress, which can also result in connection overload and thus ultimately leads to increased digital stress (Hall et al., 2021; Vanden Abeele, 2021). Therefore, the current study will explore how these person-specific sub-concepts of digital stress intertwined with the context-specific notion, specifically in the work context, can affect employee outcomes as a result. The aim is to begin to explore the theoretical aspect of digital wellbeing factors in a context-specific manner to examine the extent of these effects in such contexts.

The topic of (dis)connectivity in the work context and employee wellbeing is slowly becoming a highly researched phenomenon yet it has only been studied under different disciplines which can be categorised as digital wellbeing under the new conceptualisation. The manner in which employees engage in wellbeing is often explored in literature as work-life balance and boundary control (Rich et al., 2020). Work-life scholars have started to address the question of how individuals manage boundaries between work and non-work domains (Wepfer et al., 2018). Some strategies identified fall under the segmentation/integration continuum and according to Wepfer and colleagues (2018) have begun to be highly investigated with regards to work-family conflict and outcomes at a personal level (Allen, Cho & Meier, 2014). Nevertheless, there seems to be a lack of literature relating boundary setting strategies to

wellbeing outcomes, with work-life balance being one of them. Wepfer and colleagues (2018) set out to explore the implications of employees' work-to-life boundary enactment for wellbeing (burnout and work-life balance). The conclusions were that employees that scored high in work-to-life integration experienced more exhaustion and less work-life balance. As a result, these findings create the link between engaging in boundaries and work-life interference theory, providing further evidence as to how a lack of boundary management can in fact cause work-life interferences and have impact on employee wellbeing (Wepfer et al., 2018).

Work-home interference (WHI) and work-life interference (WLI) are concepts that have been derived from the theoretical conceptualisation of boundary management. WHI and WLI refers to when work duties overlap with home or in general life situations and vice versa (van Hooff et al., 2006). The theory of boundary management refers to the multiple life roles of people and how they prefer to manage these relationships (De Alwis & Hernvall, 2021). The concept encapsulates the idea that people create, modify and maintain mental boundaries between the different life roles to understand and manage their surroundings (Ashforth, Kreiner & Fugate, 2000). For example, on workdays employees shift from the roles of parents at home to employees when getting to work, and then back to parents when back home (Bulger, Mathews & Hoffman, 2007). The idea of individuals having different roles and managing them is very similar to the argument put forth by Vanden Abeele (2021) regarding digital wellbeing and the multiple roles which individuals must negotiate between as a result of mobile media. The boundary theory focuses mostly on psychological aspects of this role negotiation; however, the theory fails to acknowledge the integration of digital media in our everyday lives and especially, work lives. This is not to say that the effects of technology use on boundary management have not been studied. In 2014, Derks and Bakker conducted a diary study on the impact of recovery experiences on daily work-home interference (WHI) and daily burnout symptoms within a group of 69 employees that use smartphones. Derks and Bakker (2014) identified that intensive smartphone users relied heavily on psychological detachment and relaxation recovery tactics to reduce WHI. Additionally, they concluded that smartphone use is positively related to WHI, meaning that the higher the use of smartphones, the higher the interference between work and home (Derks & Bakker, 2014). The findings are solely based on smartphone use illustrating that a smartphone can already have consequences on employees and their work-home boundaries.

More recently, De Alwis and Hernvall (2020) explored the effects of technology-intense workplaces on work-life conflict and boundary preferences. The authors highlighted that ICTs (Information and Communication Technologies) are not considered a significant factor in work-life research. However, the mediating effects of ICTs "suggest that technology itself is not an exogenous factor that influences work-life conflict" (De Alwis & Hernvall, 2020, p.47). One cannot therefore simply study the effects of technology on work-life conflict, as technology is heavily intertwined in nonwork life

as well. Further linking to Vanden Abeele's (2021) emphasis on how digital wellbeing and the role of digital media in an individual's life is not separate from the person, their context nor their device. The studies discussed include technology as a separate variable with either mediating or moderating effects on work outcomes. Under the conceptualisation of digital wellbeing, mobile media is integrated in these negotiations as it facilitates or restricts the switching of social roles that an individual undertakes (Vanden Abeele, 2021).

The type of digital device is also an essential aspect to the human digital wellbeing experience. Given the constant competition over consumer attention, device interfaces are designed to keep people 'hooked' with their designs (Vanden Abeele, 2021; Williams, 2018; Yousafzai, Hussain & Griffiths, 2014). Smartphones are a device that particularly have this rewarding infrastructure embedded that gives the constant feeling of social or intellectual nourishment (Carr, 2010). Additionally, with regards to the design of the device, Schrock (2015) identified that the affordances of smartphones promote constant portability, availability, locability and multimediality. These affordances are referred to as 'communication affordances'; the possibility of an action on an object, in this case in relation to actions that enable communication. Relevantly, features of smartphones such as notifications can affect digital wellbeing experiences by activating the state of constant vigilance in the user (Johannes et al., 2018). For instance, notifications constantly notify the user of potentially rewarding and updated information (Bayer, Campbell & Ling, 2016; Oulasvirta et al., 2011). These features can induce longer usage sessions leading digital wellbeing to be affected as individuals can feel guilt or shame over their procrastination (Collier, 2016; Reinecke & Hoffman, 2016). Vanden Abeele (2021) highlights the interactive dialogical nature of digital media and indicates that its use should not be considered separate from the social context. Many scholars have already explored the effects of digital media devices. The effects of smartphone use for example, have been studied in different contexts, from the social interaction perspective or effects on psychological states. Additionally, more recently, the effects of smartphone use on individuals in the work context are being studied (De Alwis & Hernvall, 2020; Derks & Bakker, 2014).

In sum, despite the relatively new conceptualisation of digital wellbeing, the factors are still present in current and previous literature just not labelled as such. From the effects of digital media use in different contexts, the (in)ability to 'disconnect' from work during after-work hours due to smartphone use or smartphones blurring the lines between work and life roles (De Alwis & Hernvall, 2020; Derks & Bakker, 2014; Piszczek, 2017; Vanden Abeele et al., 2018). Evidence has shown that these have implications in organisations and employee outcomes such as employee engagement and job satisfaction.

2.2 Effects of Boundary Management on Employee Engagement

Employee engagement refers to being psychologically and physically present when occupying and performing an organisational role (Kahn,1990; Kompaso & Sridevi, 2010; Kular et al., 2008). Schaufeli & Bakker (2004) argue that employee engagement is characterised by a high level of energy and strong identification with one's work. An engaged employee identifies themselves through their work and illustrates high levels of vigour, dedication and sense of absorption in their work (Gignac et al., 1996; Timms et al., 2015; Wood et al., 2020). Therefore, employee engagement is a strong predictor of positive organisational performance (Kompaso & Sridevi, 2010). In the human resource and business management disciplines, boundary management takes many forms. One of the most common being work-life interferences (WLI) that refers to when work duties overlap with personal life situations and vice versa (van Hooff et al., 2006). As technology has evolved and has become more crucial in the workplace allowing for constant connectivity and availability even when not physically at work, investigations have also caught up and begun to explore its effects on WLI (Wepfer et al., 2018). Furthermore, Kossek and colleagues (2012) discuss the effects of increase in digital media use in the workplace and its effects on boundary management. The authors refer to disruptions of digital media on the notion of cross-role interruption behaviours, which is the degree to which individuals allow interruptions to occur from one role to another. In this case the roles being work and nonwork. As well as boundary management, the individuals' perception of how much control they have in terms of work-life boundaries.

Van Zoonen and Banghart (2018) set out to explore the effects of boundary management on employee engagement. They conducted a survey to investigate how employees' boundary preferences affect their work communication on social media and how the factors influence employee engagement. Their results demonstrate that work communication mediates the relationship between employee boundary preferences and engagement (van Zoonen & Banghart, 2018). In addition, Derks and colleagues (2015) identify how a lack of boundary management can affect the engagement of employees in the workplace. Their quantitative diary study shed light on the relationship between daily smartphone use and daily work-home interference (WHI). The results indicated that employees with an 'always-on' mentality culture experienced more WHI, meaning that employees who lacked boundary management with their smartphones experienced difficulty separating work from their activities at home (Derks et al., 2015).

MacCormick, Dery and Kolb (2012), claim that the most engaged employees are those that are able to easily connect and disconnect from their smartphones for work purposes. Essentially these are employees that are able to manage their boundaries with digital media, in this case; smartphones. Research has indicated the effects of smartphone use on WLI as well as its association with poor employee engagement. Derks, van Duin and Tims (2014) found that smartphone use during private hours negatively impacts work-life interferences, in addition that employees that were more engaged recorded

taking preventative measures limiting smartphone use during evening hours. These results indicate how boundary management with smartphone use can have an effect on employee outcomes. This is also supported by Derks and Bakker (2014) that also identified a negative association between smartphone use and work-life interferences.

So far it has been established that work-life interferences can be affected by digital media use, especially smartphone use during non-work hours. Furthermore, these boundary regulations employed by individuals can affect their engagement in the workplace. Thus, it is hypothesised that experiencing more work-life interference as a result of smartphone use will affect employee engagement.

H1: Employees that experience more WLI through smartphone use will indicate lower employee engagement than those that experience less WLI.

2.3 Effects of Boundary Management on Job Satisfaction

Job satisfaction is considered a component of employee engagement and as an indication of employee wellbeing (Surma et al., 2021). Like employee engagement, there seems to be little agreement on a solid definition (Aziri, 2011). In this investigation job satisfaction refers to the way in which people feel about their job (e.g. like or dislike it) and its various aspects for example, benefits, organisational support, environment, management etc. (Surma et al., 2021). It is a combination of positive and negative feelings employees have towards their work (Aziri, 2011).

Resembling engagement, academics have also focused on the effects of work-life boundaries on job satisfaction. A study conducted by Boamah and colleagues (2022) found that work-life interferences can increase burnout and as a result lower career satisfaction. Career satisfaction is similar to job satisfaction however on a larger scale referring to "an individual's evaluation of an organisational/workplace factor (e.g., advancement, development and income) relative to their own goals, expectations and accomplishments" (Boamah et al., 2022, p. 6). The definition is similar to job satisfaction in the sense that it is relative to their organisation and current job, not necessarily their career choice. The study raises a point that job satisfaction is another employee outcome that can in fact be affected by work-life interferences. Other studies have also reached the conclusion that work-life conflicts can affect employee outcomes (e.g., Abdelmoteleb, 2019; Nida, Tufail & Saleem, 2022). Abdelmoteleb (2019) investigated the relationships between work-life conflicts, specifically at home and job satisfaction among 414 employees of three organisations based in Egypt. The results indicate a negative relationship between employees' WLI and job satisfaction (Abdelmoteleb, 2019). Similarly, the study by Nida, Tufail and Saleem (2022) set out to explore the negative outcomes of boundary violation events as well as work

interrupting nonwork events. The authors concluded that there is a direct effect of work interrupting non-work on job satisfaction, illustrating how violation of boundaries can lead to lower job satisfaction.

Studies have also linked the use of smartphones during non work hours with job satisfaction. The results are somewhat mixed, some studies having found a positive relationship between smartphone use and job satisfaction and others negative relationships or no relation at all (Cheng et al., 2022; McDaniel, O'Connor & Drouin, 2020; Wright et al., 2014, respectively). This can be attributed to the double-edged sword that smartphone use can be for employees. On the one hand, it provides instant access to work-related information and constant connection to important clients, supervisors or clients. As a result, being used as a work resource that facilitates flexibility and sense of job control, aspects that have been linked to higher job satisfaction (Li & Lin, 2019; Cheung, 2022; Cheung, Lun & Wang, 2022). On the other hand, smartphones have removed any spatial or temporal limitations from being able to access and be accessible as a result employee may voluntarily or feel pressure to be constantly available for work (Van Laethem, Van Vianen & Derks, 2018). Behaviour which has been found detrimental to psychological wellbeing and job satisfaction (Cheung, Lun & Wang, 2022; Schlachter et al., 2018).

These results indicate a relationship between boundary setting preferences, smartphone use for work purposes and job satisfaction (Derks et al., 2015). Steering away from the business management and human resources frameworks; the studies are in line with Vanden Abeele's (2021) conceptualisation of digital wellbeing as they measure the effects of digital media device use (smartphones) in the work context on employee outcome, job satisfaction. Despite the mixed results, it is clear that smartphone use, and work-life interference is associated with poor job satisfaction. As a result, it is hypothesised that a lack of work-life interference will predict low job satisfaction (see Figure 1. for research model 1).

> **H2**: Employees that experience more WLI through smartphone use will indicate lower job satisfaction than those that experience less WLI.

2.4 Perceived Organisational Support as Moderator

Perceived organisational support (POS) refers to "workers' perceptions that the organisation values their contributions and cares about their wellbeing" (Babic, Stinglhamber & Hansez, 2015, p. 136). This phenomenon can influence employees' psychological wellbeing and favourableness of their orientation toward them, in addition to work and behaviours outcomes that can be helpful to the organisation if the POS is positive (Babic, Stinglhamber & Hansez, 2015; Eisenberger et al., 1997). In the context of this study, organisational support refers to employees' feelings that their boundaries between the use of digital devices for work and personal purposes are respected by colleagues, supervisors, or workplace expectations.

The acknowledgement and support of organisations with regards to wellbeing of their employees is an important moderator of many aspects such as job satisfaction, engagement, and intention to quit (Babic, Stinglhamber & Hansez, 2015). An increase in performance and a decrease in stress and withdrawal behaviours (e.g., absenteeism, engagement and turnover) have been identified as likely outcomes of POS (Krishnan & Mary, 2012). This supports the idea that POS can increase the wellbeing of employees and performance. Derks and colleagues (2015) identified that when supervisors do not expect employees to always be available after work hours from their phone, it has a positive effect in the workplace, such as employee engagement, and even allows for employees to manage their own boundaries. Furthermore, the study claims that peer influence and supervisor influence with regards to expectations of being accessible after work hours are factors that influence employees' availability through smartphones after work. These expectations can cause employees to experience more work home boundaries interferences that affect their engagement in the workplace.

Regarding job satisfaction, Babic, Stinglhamber and Hansez (2015) concluded that there is a connection between perceived organisational support and job satisfaction as well as employee outputs in the workplace. The study explored the mediating role of work-home interferences (WHI) in the relationships between perceived organisational support and employee outcomes (job satisfaction, job engagement, job strain and intention to quit). The direction of WHI explored was when work affects home responsibilities, which can be negatively predicted through employee's perceptions of whether their organisation is family-supportive (Allen, 2001). Furthermore, the work-life conflict can be reduced through the implementation of policies and practices in support of employees' work-home boundaries. Despite the study exploring a mediation model instead of moderation, the findings of Babic and colleagues (2015) indicate that in fact support from organisations regarding work-life boundaries can affect employee outcomes such as job satisfaction given its significant role. More relevantly however, Cheng and colleagues (2022) found a direct association, that perceived organisational support was a significant moderator of the relationship between work connectivity behaviour after-hours and job satisfaction among employees from an internet company in China. This study highlights how engaging in behaviours to stay connected for work purposes after hours may affect job satisfaction moreover that this relationship is mitigated by POS. The moderating effect of POS according to Cheng and colleagues (2022) is likely as high levels of POS signifies that employees have sufficient resources to deal with growing job demands such as work connectivity after hours (Bakker & Demerouti, 2017). Therefore, it can be argued that engagement is a factor that may suffer as a result of a lack of resources to manage the demands of connectivity on top of job demands.

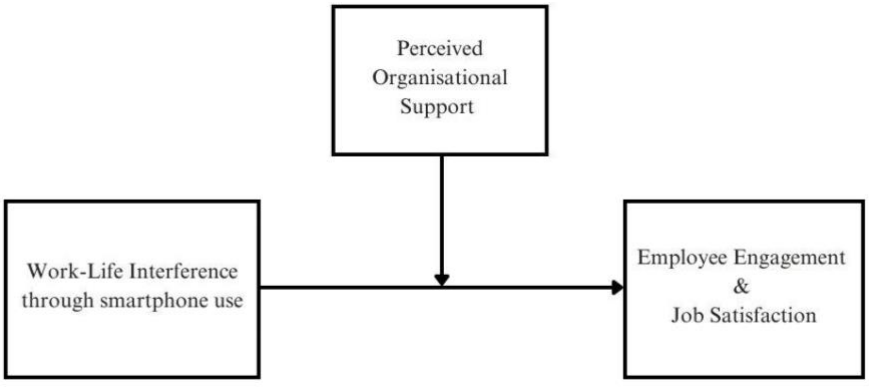
Recalling the notion of digital wellbeing, context-specific factors refer to boundaries with digital media that are set in these specific groups or in the case of this study, working institutions. POS under this

conceptualisation is in line with person- and context-specific factors of digital wellbeing as it refers to the subjective perception (or rather experience) of an individual in the workplace that could lead to negative outcomes. The idea of whether (dis)connectivity is necessarily voluntary nowadays or even in certain contexts has been brought up by some authors (Radtke et al., 2022; Vanden Abeele., 2021) and exploring these scenarios and their effects has been called for future research (Radtke et al., 2022). Investigating whether perceived organisational support can moderate the relationship between an employee's own work-life boundary management with their smartphone and whether they feel engaged or satisfied at work would add onto this call for future research. Given that there is substantial evidence of the direct and moderating effects of POS on employee outcomes, individuals that are already experiencing high work-home interference and do not feel their organisation is supportive of them may experience more negative effects on engagement and job satisfaction. This study will explore whether the effect of WLI on employee engagement and job satisfaction differs between respondents with high POS compared to employees with low POS (see Figure 1 for research model 1).

H3a: The association between work-life interference and employee engagement will be moderated by POS such that it is stronger among those scoring high POS than among those scoring low POS.

H3b: The association between work-life interference and job satisfaction will be moderated by POS such that it is stronger among those scoring high POS than among those scoring low POS.

Figure 1. Research Model 1



2.5 Effects of Digital Stress on Employee Engagement and Job Satisfaction

This study will explore the effect of digital stress on employee outcomes (i.e., employee engagement and job satisfaction). Digital stress is categorised as a person-specific factor to consider in digital wellbeing as it is a state that can affect the experience of digital media use (Steele et al., 2020; Vanden Abeele, 2021). So far, digital stress has been studied as an outcome of media use (Hall et al., 2021). For example, measuring the amount of time spent on social media and the amount of digital stress, or the relationship between digital stress and psychological outcomes, such as anxiety or depression (Hall et al., 2021). In any case, the notion of digital stress and its dimensions are relatively new therefore, lack thorough investigation in other contexts. However, a relatively similar concept; technostress has been long studied in employee wellbeing research. Technostress refers to the psychological stress connected with the use of technologies (Bondanni et al., 2020). The term has been defined as "a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner" (Kot, 2022; p. 332). Tarafdar and colleagues (2007) claim that in the working environment technostress describes the stress that employees feel due to the multitasking, constant contact, overload of information, system updates and the uncertainty related to the organisational use of Information Communication Technology (ICT). Occupational stress of this fashion is related to employee wellbeing, work performance and level of satisfaction and engagement (Aktan & Toraman, 2022). Digital stress is similar as it encapsulates the negative consequences of digital media use, not necessarily technology in the general sense. Studies have investigated concepts that would qualify as digital stress research, however, have not been directly linked such as the effects of email overload on productivity and engagement (Reinecke & Chamorro-Premuzic, 2014). Nevertheless, some of the current literature on digital stress has also been able to link this type of stress with negative wellbeing outcomes including in the work context.

Digital stress in the field of psychology and social sciences has been examined, in fact previous literature on digital stress components illustrate that they are associated with psychological symptoms such as anxiety, depression and burnout. Thomee and colleagues (2010) found that availability stress acted as a predictor of stress and symptoms of depression in adult smartphone use. Similarly, Mai and colleagues (2015) identified a positive association between perceived obligations to respond on digital platforms and anxieties. With regards to connection overload, researchers discussed the stress that originates when the amount of information surpasses the individual's ability to process it (Hefner & Vorderer 2016; LaRose et al. 2014; Reinecke et al. 2017). Oftentimes, this concept is operationalised in terms of an objective standpoint (e.g., number of notifications, number of messages sent or received). As an example of the use of objective units (e.g., number of logins, followers, notifications), LaRose and colleagues (2014) found a positive association between connection demands and the psychological wellbeing of participants. Interestingly, when the subjective experience was taken into account, the model

indicated poorer mental health associated with more connection demands, also highlighting the importance of subjective measurement of experiences. From a more subjective perspective, Reinecke and colleagues (2017) examined the relationship between digital stress and psychological health and reported that communication load is positively associated with perceived stress, self-reported burnout, symptoms of depression and anxiety. This is consistent with previous research (Chen & Lee, 2013; Misra & Stokols, 2011).

Relevantly, regarding employee outcomes, the psychological states of depression, anxiety, and burnout have been associated with having a great impact on job satisfaction and engagement at work (Lu, Yu & Shan, 2022). In fact, employee mental health is a topic of great interest to scholars and investigators. Given that detrimental employee mental health can lead to significant costs such as burnout, work-family conflict and low-productivity (Dimoff & Kelloway, 2019; Van Gordon et al., 2014). Recent studies have investigated the effect of employee mental health and employee outcomes. For example, Cao, Zhang and Huang (2022) explored the influence of mental health on job satisfaction and the results indicated a positive correlation between positive mental health and job satisfaction, and going beyond that, identified a negative correlation between declining mental health and job satisfaction. Additionally, Ford and colleagues (2011) found that psychological health (i.e. depression, general anxiety, life satisfaction) is a strong predictor of work performance. These results hint at a relationship between the effects of digital stress and work outcomes, thus this study will adopt availability stress and connection overload as possible predictors of employee outcomes.

So far, it has been established that availability stress and connection overload act as predictors for negative psychological states, which in employee mental health studies have proven to be detrimental to employee outcomes such as job satisfaction, engagement or even work-life conflict (Dimoff & Kelloway, 2019). Furthermore, given that digital stress explores a similar concept to technostress (which has been associated with negative work outcomes), we propose that there will be a similar association between digital stress with job satisfaction and employee engagement. By considering this relationship, the effects of availability stress and connection overload in the work-context will be explored, thereby expanding on the current knowledge of these effects into other disciplines and bridging the gap between digital stress and employee wellbeing research. The aim is to explore whether being in these states of availability stress and connection overload can affect engagement at work and the job satisfaction of employees (see Research Model 2).

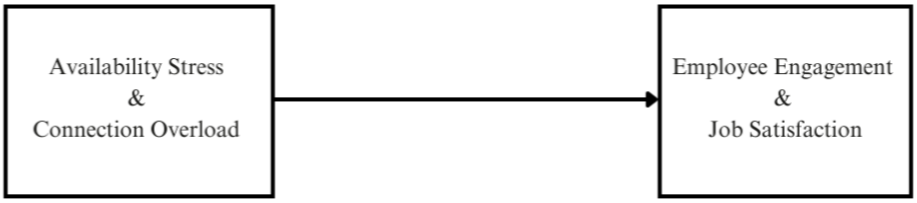
> **H4a:** Employees that score high in availability stress indicate lower levels of employee engagement at work than those that score low levels of connection overload.

H4b: Employees that score high in connection overload indicate lower levels of employee engagement at work than those that score low levels of connection overload.

H4c: Employees that score high in availability stress indicate lower levels of job satisfaction than those that score low levels of availability stress.

H4d: Employees that score high levels of connection overload indicate lower levels of job satisfaction at work than those that score low levels of connection overload.

Figure 2. Research Model 2



3 Methodology

In order to answer the research question, a quantitative survey is the most suited method of data collection. Surveys allow the gathering of information directly from individuals, essentially that of a sample of a population (Pinsonneault & Kraemer, 1993). Additionally, surveys are suitable for gathering knowledge about the characteristics, actions, or opinions of a large group of people (Pinsonneault & Kraemer, 1993). Sudman, Salant and Dillman (1996) claim that surveys can also be used for the purpose of evaluating needs, demand and examine the impact, furthermore, are essential tools in determining features as well as describing living conditions of a population. With regards to digital wellbeing research, Gui and colleagues (2017) identify survey methods as an optimal way of collecting subjective indicators. Thus, for this study, adopting the quantitative survey research method is the most suitable approach. We will be able to explore whether the self-regulation of employees' digital availability as part of their wellbeing is associated with their engagement at work and job satisfaction. The results can provide valuable information for organisations on successful management of employee wellbeing.

3.1 Procedure

The population of interest for this study were individuals that are employed (employees) full-time in an organisation where they work in an office environment including remote workers; essentially white-collar workers. According to the Cambridge dictionary, a white-collar worker is someone who performs professional, desk, managerial or administrative work; people who work in offices, doing work that needs more mental rather than physical effort (Cambridge Dictionary, 2023). The individuals can be working remote (completely virtual), in a hybrid (partially virtually and physically present) or physical presence manner, as there has been an increase in working from home culture following the Covid-19 pandemic (Ozimek, 2020; Surma et al., 2021). These criteria will allow the responses from individuals that are often surrounded by technology in their workplace and rely on it for work communication purposes as well which is crucial to this investigation to understand how they deal with this environment and the effects this has on their work.

In order to gather respondents for this research a purposive sampling method will be utilised. Purposive sampling consists of gathering individuals based on selection criteria (Berger, 2019). For this research, the criteria were:

- Adult (18+)
- Full-time employees
- White-collar employees
- Working for an organisation

The survey was shared on social media channels such as LinkedIn (on survey exchange groups) and contact with individuals that fit the criteria. Furthermore, the survey was shared on SurveyCircle, a website where surveys can be posted to gather participants. By filling out other surveys, the survey posted gains ranking and exposure, thereby gaining more respondents. However, for this project the minimum requirement is 150 respondents, thus a snowballing method was also adopted by asking individuals to share the survey with others with similar profiling to attain optimal reach of the respondents that fit the criteria. The only restrictions for individuals are those that are not aged over 18 and that do not fit the selection criteria, their responses will not be recorded.

In terms of ethical considerations as is the case in any research conducted with participants, there was a consent form that participants needed to agree to before starting the survey. Other than getting consent form the participant to take part in this research, the consent form included a detailed explanation of their rights to withdraw at any moment, and that their data is anonymous and will only be handled by the researcher (myself). Furthermore, a brief description of what the survey concerns was provided for their understanding and transparency between the researcher and participant.

The survey was posted on a series of social media platforms (Whatsapp, Instagram, Facebook, Reddit and LinkedIn) and the SurveyCircle website during the first wave of data collection. Then, the survey link was posted on social media groups related to employee engagement and community groups (LinkedIn and Reddit) to reach the target audience. When the link was pressed by the participants, they encountered a consent form that provided details such as information about data privacy and anonymity of their responses. Once they agreed to participate, respondents were asked whether they are a full-time employee. Once 'yes' was clicked they were able to participate in the survey and were taken to a series of demographic questions (age, country of origin, gender) and whether they work remotely. Following this, the participants encountered questions regarding work-life boundaries with smartphone use, followed by questions regarding digital stress. Next, questions regarding perceived organisational support, engagement at work and job satisfaction were presented. At the end of the survey, respondents were thanked for taking the survey. Furthermore, for participants using SurveyCircle, a code needed to redeem points for filling out the survey was provided. Notably, no monetary compensation was offered for taking part in this survey, as SurveyCircle is based on a survey exchange method. Hence, participants gained points that allowed their own survey to gain a higher ranking which likely leads to more exposure. The data was then processed and analysed on SPSS, the statistics software platform by IBM.

3.2 Sample

The final sample consists of 201 respondents, 187 reached the end of the survey however, 19 participants did not meet the criteria requirements and were filtered out from the data. As a result, the final sample consists of a total of 168 respondents. The participants ranged from the ages of 20-62 with an average age of 40.7 (*SD* = 13.2). The sample consisted of 92 individuals (54.8%) that identified as female and 74 male participants (44%). The remaining 0.8% (N=2) selected the option ‘would rather not specify’. These participants were reported as missing variables for further analyses concerning gender in order to be able to include sex as a binary variable in the regression analyses. With regards to nationality, due to the international nature of the approached groups, the sample obtained a total of 29 nationalities. The most prominent nationalities were Spanish (37.5%), German (11.3 %), Dutch (8.3%), American (7.1%), Colombian (6.5%), Italian (4.2%), Chinese (3.6%), and British (3%). As a result of the purposive and snowball sampling method used, at the beginning stages the individuals that were reached out, the majority were of Spanish origin, German and Dutch nationality. Additionally, 76.2% recorded working from home and 23.8% did not at all work from home.

3.3 Measures

3.3.1 Work-Life Interference (WLI)

In order to measure the digital wellbeing indicator of boundary management, the Work-Life boundary scale proposed by Kossek et al. (2012) was utilised and adapted for the study. The scale chosen consists of two work-life interference dimensions. The first being work interrupting nonwork behaviours, referring to the extent to which an individual self-regulates boundaries to allow work to interrupt the non-work role. The second dimension is Boundary Control and refers to the individual's perceived ability to control how they manage the boundaries between work and personal life. Together they measure the self-regulation behaviour and control perception of their boundary management (Kossek et al., 2012). The justification for the adaptation of the scale is to examine how employees perceive and regulate their work-life roles during smartphone use for personal or work purposes. Therefore, the scale was adapted to refer to smartphone use specifically for the purpose of this study. The rise in digitalisation of work has caused the blurring of the line between work and life (De Alwis & Hernvall, 2021). This could be because of hybrid working (both physically present at work and virtually) or fully working from home or just even taking work home by answering work-related emails or phone calls (De Alwis & Hernvall, 2021). The two subscales utilised for this study are the 'Work Interrupting Nonwork Behaviours' (Cronbach's α= .86) and 'Boundary Control' (Cronbach's α= .77). The scales have been adapted to refer to digital device usage for work purposes instead of only 'work'. The 'Work Interrupting Nonwork Behaviours' (M = 2.92, SD = 1.03) subscale consists of five items measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The original format of the items consists of questions such as: "I work during my vacations" which have been adapted to "I use my digital devices for work-related reasons during my vacations" or from the original "I usually bring work materials with me when I attend personal or family activities" to the adapted version "I usually use my digital devices for work-related reasons when I attend personal or family activities" (see Table 1).

The subscale of Boundary Control (M = 2.38, SD = .92) contains three items measured on a 5-point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The original statements refer to ability to control when work interferes with personal life whereas the adapted versions refer to when work-related use of digital devices interferes with personal use and life. For example: "I control whether I am able to keep my work and personal life separate" adapted to "I control whether I am able to keep separate the use of my digital devices for work and personal use" and "I control whether I have clear boundaries between work and my personal life" which has been adapted to " I control whether I have clear boundaries between work and personal use of my digital devices" (see Table 1 for all items).

The Work-Life-Indicator Scale Items underwent an oblique factor rotation (Direct Oblimin) to validate the scale items. The reason for an oblique rotation is the assumption that there may be correlation

between the items (Hayes, 2013). Firstly, three items were reverse coded prior to the analyses. A Kaiser-Meyer-Olkin measure of Sampling Adequacy (KMO), and a Bartlett's test of Sphericity based on Eigenvalues was conducted and indicated that there is substantial correlation between the items, (KMO = .846, $\chi 2$ (N = 168, 28) = 595.234, $p < .001$). The resultant model explained up to 60% of variance in Work-Life Interference. The KMO rotation method identified 2 factors (presented in Table 1) in line with previous studies and subscale items of the Work-Life Interference scale; Work Interrupting Non-Work Behaviour (n= 5) and Boundary Control (n=3) (De Alwis & Hernvall, 2021).

Table 1

Factor loadings for Work-Life Interference

ITEM	***Work Interrupting Non-Work Behaviour***	***Boundary Control***
I usually use my smartphone for work-related reasons when I attend personal or family activities.	*.88*	
I use my smartphone for work-related reasons during my vacations.	*.85*	
I respond to work-related communications on my smartphone (e.g. emails, texts, and phone calls).	*.73*	
I allow my smartphone to interrupt me for work-related reasons when I spend time with my family.	*.67*	
I regularly bring work home.	*.60*	
I control whether I am able to keep separate the use of my smartphone for work and personal use. (R)		*.90*
I control whether I have clear boundaries between work and personal use of my smartphone. (R)		*.67*
I control whether I combine my smartphone for work and personal use throughout the day. (R)		*.56*
EIGENVALUE	***4.01***	***1.39***
Cronbach's α	***.86***	***.77***

3.3.2 Employee engagement

A dependent variable in this study is employee engagement. In order to measure employee engagement, the shortened version of the Utrecht Work Engagement scale (UWES-9) created by Schaufeli and Bakker (2004) will be utilised for this investigation. The scale consists of three dimensions: Vigour, Dedication and Absorption and are characterised by Schaufeli and Bakker (2004) in the following manner: Vigour is characterised by high levels of energy and mental resilience while working, the willingness to invest effort into their work and perseverance. Those that score high in vigour

emit energy, zest and stamina while working. Dedication on the other hand refers to the level of involvement in one's work as well as experiencing a sense of significance, enthusiasm and inspiration. Those that score high heavily identify with their work as they find it meaningful, inspiring and challenging. Lastly, absorption refers to the level of immersion in one's work. Those that score high on absorption have difficulty detaching themselves from work and get carried away while working.

The shortened version of the scale consists of 9 items compounded from the three dimensions of work engagement; Vigour (M = 4.49; SD = 1.06), Dedication (M = 4.98; SD = 1.19) and Absorption (M = 4.77; SD = 1.02). The items that refer to how one feels at work and are measured on a scale from 0 (never) to 6 (always/every day). An example statement of the items is “Time flies when I am working”, “At work, I feel bursting with energy” or " I get carried away when I am working” (See Table 2 for all items).

Table 2

Factor Loadings Employee Engagement

ITEM	***Factor 1***	***Factor 2***
My job inspires me. (DE)	*.92*	
I am proud of the work that I do. (DE)	*.91*	
I am enthusiastic about my job. (DE)	*.90*	
At my job, I feel strong and vigorous. (V)	*.68*	
When I get up in the morning, I feel like going to work. (V)	*.60*	
I am immersed in my work. (AB)	*.57*	
I feel happy when I am working intensely. (AB)	*.47*	
I get carried away when I am working. (AB)		*.52*
At work, I feel bursting with energy. (V)		*.50*
EIGENVALUE	***4.94***	***1.04***

Note. V = Vigour, DE = Dedication, AB= Absorption

The employee engagement scale items underwent an oblique factor rotation (Direct Oblimin) to validate the scale items. Furthermore, a Kaiser-Meyer-Olkin measure of Sampling Adequacy, and a Bartlett’s test of Sphericity based on Eigenvalues was conducted. The results concluded that there is a substantial correlation between the items (KMO = .882, $\chi 2$ (N = 168, 36) = 271.846, $p < .001$). The resultant model explained up to 66.5% of variance in Employee Engagement. Table 2 illustrates the two factors extracted from the KMO rotation method however, they are not in line with discussions in previous studies regarding the UWES-9 that includes 3 subscales (i.e., Vigour, Dedication and Absorption; see Schaufeli & Bakker, 2004). The items listed in Table 2 are labelled with their respective dimension as proposed by Schaufeli and Bakker (2004), they illustrate the deviation of the original scale

from the results of the factor analysis. One of the components identified, Factor 2, contains only 2 items, which can be problematic with regards to the reliability of findings (Eisinga, Grotenhuis & Pelzer, 2013). As a result, the reliability of the already-established item groupings by Schaufeli and Bakker (2004) was analysed in order to determine whether the internal consistency of the scales was sufficient to proceed with the established subscales. The results indicated that for Vigour (Cronbach's α = .78) and Dedication (Cronbach's α = .78) the internal consistency was sufficient with relatively high Cronbach's results. However, in the case of Absorption, the initial Cronbach's α value of .58 resulted in a low score. Consequently, an item (*"I get carried away when I am working")* was dropped resulting in a Cronbach's α value of 64 thereby increasing the overall internal consistency of the scale. Nevertheless, dropping an item results in only two items measuring Absorption and as mentioned before, according to Eisinga, Grotenhuis and Pelzer (2013) using two-item scales has been deemed problematic and risky when identifying underlying constructs and utilising scales with more items is preferred. Hence, Absorption will be dropped and will not be used as a variable in this study taking into consideration the possible limitations when discussing the conclusions regarding employee engagement having dropped a variable from an already-shortened scale.

3.3.3 Job satisfaction

The second dependent variable in this study is Job satisfaction. In order to measure the level of job satisfaction of employees, the Generic Job Satisfaction scale (Cronbach's α = .83; M = 3.61; SD = .589) developed by Macdonald and MacIntyre (1997) was utilised. The scale was developed to measure job satisfaction relevant to a wide range of occupational groups. Additionally, the scale has been linked to variables external to the workplace thus, considering the nature of this study, the Generic Job Satisfaction scale was most suitable (Macdonald & MacIntyre). The scale consists of 10 items measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly agree). The items refer to situations that are correlated with satisfaction in the workplace, some example statements of the items are "I feel good about my job" and "I feel good about working at this company" (see Appendix A for scale items). As the scale consisted of no sub-variables, Cronbach's Alpha was sufficient to determine the reliability of the scale for its use.

3.3.4 Digital Stress

In order to measure the level of digital stress of employees, the digital stress scale developed by Hall and colleagues (2021) was used. Two subscales from the original scale were used in this study; Availability Stress (Cronbach's α = .87) and Connection Overload (Cronbach's α = .84). The availability stress subscale (M = 2.90; SD =1.01) aims to measure the "distress (including guilt and anxiety) resulting from beliefs about others' expectations that the individual responds and be available by digital means"

(Steele et al., 2020, p. 18). The sub-scale consists of 4 items measured on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) and was adapted. The justification for the adaptation is that the original scale specified 'social' distress referring to friends, thus adaptations were made to refer to availability stress with regards to work for the purpose of this study. Examples of adaptations are from the original item "My friends expect me to be constantly available online" to the adapted version "My work expects me to be constantly online". Furthermore, from the original "I feel a social obligation to be constantly available online" to " I feel a work obligation to be constantly online" (see Table 3)..

Table 3

Factor Loadings and Reliability analyses for scales for Digital Stress

ITEM	***Connection Overload***	***Availability Stress***
I feel stress because I must shift through a lot of unimportant notifications to get to the important ones.	*.84*	
I have to check too many notifications.	*.68*	
On top of other things I must do, keeping up with notifications is a chore.	*.68*	
I feel overwhelmed with the flow of messages/notifications on my phone.	*.63*	
It feels like there is always a reminder – like a flashing light or buzz – that there is some other message I need to attend to.	*.58*	
I spend too much time responding to notifications/messages.	*.54*	
For my work, it is important that I am constantly available online.		*-.87*
My work expects me to be constantly available online.		*-.85*
My work approves of me being constantly available online.		*-.75*
I feel a work obligation to be constantly available online.		*-.59*
EIGENVALUE	***4.83***	***1.5***
Cronbach's α	***0.87***	***0.84***

As for the Connection Overload (M = 2.95; SD = .813) sub-scale, the original version was maintained. The subscale consisted of 6 items also measured on a 5-point Likert scale and measures the “distress resulting from the subjective experience of receiving excessive input from digital sources, including notifications, text messages, posts, etc.” (Steele et al., 2020; p.20). Some examples of the items are "I check too many notifications" and "I feel overwhelmed with the flow of messages/notifications on my phone" (see Table 3 for all items).

Like the other scales, the Digital Stress scale items underwent an oblique factor rotation (Direct Oblimin) to validate the scale items under the assumption that there may be correlation between the items (Hayes, 2013). The results of the Kaiser-Meyer-Olkin measure of Sampling Adequacy, and a Bartlett’s

test of Sphericity based on Eigenvalues was conducted (KMO = .869, $\chi 2$ (N = 168, 45) = 775.947, p <.001). The resultant model explained up to 63.3% of variance in Work-Life Interference. The KMO rotation method identified 2 factors (presented in Table 3) in line with previous studies and subscale items of the Digital Stress scale; Availability Stress (n items= 4) and Connection Overload (n items= 6) (Hall et al., 2021).

3.3.5 Perceived Organisational Support

In order to measure perceived organisational support, the shortened version of the scale: POS-8 scale (Cronbach's α = .83) presented by Eisenberg and colleagues (1986) was implemented. The scale is aimed to measure how much employees feel the organisation for which they are working values their input and cares about their wellbeing. Employees scoring high in perceived organisational support are treated fairly, are rewarded for their work and have support from superiors (Rhoads & Eisenberger, 2002). The POS-8 (M = 4.59; SD = .923) scale consists of 8 items measured on a 7-point scale (1 = Strongly Disagree; 7 = Strongly Agree). The items refer to the extent to which an individual believes their organisation has their best interest in mind. Some example statements are "The organisation strongly considers my goals and values" and "My organisation shows very little concern for me" (see Appendix A for all scale items).

4 Results

The following section will discuss the results of the data analysis. Firstly, as part of the preliminary analysis, description of the sample with regards to the variables in this study will be provided. This is then followed by the results of a test for normality and a correlation matrix. Secondly, the results of the analyses conducted to test the hypotheses will be discussed.

4.1 Preliminary analyses

The means and standard deviations for work-life interferences, perceived organisational support, availability stress, connection overload, employee engagement dimensions and job satisfaction are illustrated in Table 4. For the research variables with the possible range of 1.00 to 5.00 (i.e., work-life interferences, availability stress, connection overload and job satisfaction), the participants indicated they would 'neither agree nor disagree' to statements on job satisfaction (M= 3.61, SD = 0.59) nearing close to 'agree'. For boundary control (M= 2.38), work interrupting non-work behaviours (M= 2.92) as well as experienced low levels of connection overload (M= *2.95*) and availability stress (M= 2.90) given the mean falls in 'disagree' (2) however, nearer to 'neither agree nor disagree' (3). As per employee

engagement and perceived organisational support with the possible range of 1.00 to 7.00 , participants experienced moderate levels of vigour (*M*= 4.49) and mostly dedication (*M*= 4.98) as well as perceived organisational support (*M*= 4.59) given the mean falls between 'neither agree or disagree' and 'somewhat agree'.

A Shapiro-Wilk test (W) was conducted (Table 4.) to check the assumption of normal distribution in the data. The test concluded that there is a significant difference between the research variables Boundary control (W = 0.94, p <.001), work-interrupting non-work (W = 0.98 , p <.001), perceived organisational support (W = 0.98 , p = .011), availability stress (W = 0.97, p = .001), connection overload (W = 0.98, p = .005), vigour (W = 0.98, p = .018), dedication (W = 0.96, p <.001) and job satisfaction (W = 0.98, p = .029) and the normal distribution. Meaning the data is in fact, not normally distributed. As a result, the correlation analysis will be conducted with the non-parametric Spearman's rank correlation coefficient.

Table 4

Descriptive Statistics and Shapiro-Wilk test for normality

Variable	M	SD	W
Boundary Control	2.38	0.92	0.94*
Work Interrupting Non-Work	2.92	1.02	0.98*
Perceived Organisational Support	4.91	0.99	0.98**
Availability Stress	2.90	1.01	0.97**
Connection Overload	2.95	0.81	0.98**
Vigour	4.49	1.06	0.98**
Dedication	4.98	1.19	0.96*
Job Satisfaction	3.61	0.59	0.98**

Note. *W= Shapiro-Wilk Test of normality statistic, **p<.05, *p<.001*

Given the test for normality indicated the data for the research variables deviate from normal distribution, the non-parametric Spearman's rho correlation coefficient was utilised to examine the correlation between variables (see Table 5). Furthermore, when testing for a moderator, the relationship between the moderating variable and outcomes must be explored (Hayes, 2013). As a result, the correlation test was conducted to investigate the relationship between the moderation variable perceived organisational support (POS) and the outcomes Vigour, Dedication and Job Satisfaction before testing the moderating effects. In addition, the correlation test will also provide information regarding potential predictors that may have an impact in the research model.

The results indicate that boundary control was positively correlated to work-interrupting non-work behaviours (r= .46, p < .001), availability stress (AS) (r= .48, p < .001) and connection overload (CO) (r= .30, p < .001) and these correlations are significant. Additionally, as seen in Table 5, there is a

negative correlation between boundary control and POS (r= -.29, p < .001) also at the .001 significance level. The results indicated that work interrupting non-work is positively correlated to almost all variables: availability stress (r= .52, p < .001), connection overload (r= .33, p < .001), vigour (r= .29, p < .001), dedication (r= .21, p = .006) and job satisfaction (r= .16, p = .034) at a significant level, except for the POS variable. There was no significant relationship detected between work interrupting non-work and POS as seen in Table 5. With regards to POS, the results identified significant positive correlations to job satisfaction (r = .65, p < .001), employee engagement dimensions vigour (r = .42, p < .001) and dedication (r = .50, p < .001). This supports Hayes' (2013) assumption for moderation that the moderator should have an association to the outcome variables. On the other hand, there was a significant negative correlation between POS and AS (r = -.22, p = .005) and CO (r = -0.19, p = .014).

Table 5
Correlation Matrix (Spearman's Rho)

Variable	1	2	3	4	5	6	7	8	9	10
1. Boundary Control (BC)	–									
2. Work Interrupting Non-Work (WINW)	.46**	–								
3. Perceived Organisational Support (POS)	-.27**	-.01	–							
4. Availability Stress (AS)	.48**	.52**	-.22*	–						
5. Connection Overload (CO)	.30**	.33**	-.19*	.55**	–					
6. Vigour	.03	.29**	.42**	.03	.02	–				
7. Dedication	.03	.21**	.50**	.07	.06	.72**	–			
8. Job Satisfaction (JS)	-.08	.16*	.65**	-.04	-.01	.58**	.65**	–		
9. Gender	.03	.14	.05	.09	-.02	.12	.00	.09	–	
10. Age	.12	.24**	.10	.08	-.03	.33**	.30**	.20**	.23**	–

Note. *N= 168, **p< .01, *p< .05, the control variables were included in the analysis; Gender and Age*

Availability stress is significantly positively correlated to connection overload (r = .55, p < .001) and as mentioned is positively correlated to boundary control, work interrupting nonwork and negatively correlated to POS (r = .48, p < .001 , r = .52 p < .001, r = -.22 p = .005 respectively). Both vigour and dedication, illustrate a high significant correlation (r > 0.7) furthermore as seen in Table 5 they are positively correlated to job satisfaction (r = .58, p < .001, r= .65, p < .001, respectively). Lastly, as for the control variables the results indicated that age is positively significantly correlated to WINW (r = .24 , p

= .001), vigour (r = .33 , p < .001), dedication (r = .30 , p < .001), JS (r = .20 , p = .009) and Gender (r = .20 , p = .003). For gender, age was the only significant correlation identified.

4.2 Hypotheses Testing

In order to test the hypothesis, a hierarchical linear regression analysis was conducted including Gender and Age as control variables. When testing the moderating effects, the moderation analysis was conducted using Baron and Kenny's (1986) method. As per the considerations for this method, the means of the variables were centred and new interaction variables were created before the analysis (Baron & Kenny, 1986). Centering the mean is argued by some researchers to reduce multicollinearity issues (when multiple independent variables are correlated) in the regression analysis when testing for moderation, while others claim mean-centering does not change the sampling accuracy of main effects, simple effects, interaction effects nor the R^2 (Echambadi & Hess, 2007). For precaution, in this study, the means were centred prior to analysis therefore, removing possible multicollinearity issues.

To test the hypotheses, a hierarchical linear regression analysis was chosen. This method allowed for the analysis of the amount of variance explained in a dependent variable by more than one predictor (Ross & Wilson, 2017). In total three regression analyses, one per dependent variable, were conducted to test the hypotheses and followed three steps. The first step included the control variables age and gender. Then in step 2 the independent predictor variables; boundary control (BC), work-interrupting non-work (WINW), perceived organisational support (POS), availability stress (AS) and connection overload (CO) were added to test for H1, 2 and 4a, b, c, d. In step three the hypotheses concerning the moderating role of POS on employee engagement and job satisfaction were tested (H3a, b) by adding the interaction with BC and WINW.

Table 7 and 8 illustrates the regression analyses conducted for the employee engagement having as dependent variables Vigour and Dedication, respectively. The two analyses tested the effects of work-life interference on engagement (H1) as well as the moderating effects of POS (H3a) and lastly the effects of availability stress (H4a) and connection overload (H4b) on employee engagement. Model 3 illustrates the complete analysis after all the variables have been entered. For Vigour (Table 7), the results of the analysis found that the overall relationship is significant (F (9, 156) = 10.298, p< .001) moreover that 37% (R^2 = 0.37) of the variance in vigour can be explained by age (β = 0.04, p<. 001), work-interrupting non-work (β = 0.19, p = .02) and POS (β = 0.45, p < .001). However, in step 3 when adding the interaction of POS, the relationship is no longer significant F (2, 156) = 1.922, p = .150, furthermore only 1.5% (ΔR^2) of the variance is now explained.

Table 7

Hierarchical Regression Results for Vigour

Variables	Model 1 (Controls)		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Age	0.03 (0.01)	0.34*	0.02 (0.005)	0.24*	0.02 (0.005)	0.04*
Gender	0.06 (0.16)	0.03	0.01 (0.14)	0.005	0.02 (0.14)	0.01
BC			0.09 (0.09)	0.08	0.08 (0.09)	0.07
WINW			0.19 (0.08)	0.19**	0.20 (0.08)	0.19**
POS			0.49 (0.07)	0.46*	0.49 (0.07)	0.45*
AS			-0.08 (0.09)	-0.07	-0.09 (0.09)	-0.09
CO			0.06 (0.10)	0.05	0.08 (0.10)	0.06
POS*BC					0.11 (0.08)	0.09
POS*WINW					0.05 (0.08)	0.05
R^2	0.12*		0.36*		0.37*	
F for R^2 change	0.12*		0.24*		0.01	

Note. ** p<.001, ** p<.05, BC= Boundary Control, WINW= Work Interrupting Non-work, AS = Availability Stress, CO= Connectivity Overload*

Table 8

Hierarchical Regression Results for Dedication

Variable	Model 1 (Controls)		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Age	0.03 (0.01)	0.3 *	0.02 (0.01)	0.22**	0.02 (0.01)	0.22**
Gender	-0.09 (0.18)	-0.04	-0.15 (0.15)	-0.06	-0.15 (0.16)	-0.06
BC			0.11 (0.09)	0.09	0.11 (0.09)	0.08
WINW			0.05 (0.09)	0.05	0.06 (0.09)	0.05
POS			0.67 (0.08)	0.56*	0.67 (0.08)	0.56*
AS			0.07 (0.10)	0.60	0.06 (0.10)	0.05
CO			0.19 (0.11)	0.12	0.19 (0.11)	0.13
POS*BC					0.07 (0.09)	0.05
POS*WINW					0.02 (0.09)	0.02
R^2	0.09*		0.39*		0.39*	
F for R^2 change	0.09*		0.30*		0.004	

Note. ** p<.001, ** p<.05, BC= Boundary Control, WINW= Work Interrupting Non-work, AS = Availability Stress, CO= Connectivity Overload*

With regards to the second employee engagement variable Dedication, the results identified an overall significant relationship in the model (F (9,156) = 11.380, $p < .001$) and 39% ($R^2 = 0.39$) of the

variance in dedication can be explained by age (β = 0.22, p =. 001) and POS (β = 0.56, p<. 001). It must be noted that in step three after adding the interaction of POS, the model becomes insignificant (F (2, 156) = 0.527, p = .591) and the R^2 change drops (ΔR^2 = .004). The findings from the analysis suggest that H1 can be partially accepted given that only work-interrupting non-work behaviours is a significant predictor of Vigour at work. On the other hand, the interactive effects of POS on the models resulted insignificant for both Vigour and Dedication, thereby rejecting H3a. Lastly, availability stress and connection overloads are not predictors of vigour and dedication thus, H4b is rejected.

Table 9

Hierarchical Multiple Regression Results for Job Satisfaction

Variable	**Model 1 (Controls)**		**Model 2**		**Model 3**	
	B (SE)	β	B (SE)	β	B (SE)	β
Age	0.01 (0.003)	0.21**	0.005 (0.003)	0.12**	0.005 (0.003)	0.11**
Gender	0.04 (0.09)	0.04	0.02 (0.04)	0.01	0.03 (0.07)	0.02
BC			0.02 (0.04)	0.03	0.02 (0.04)	0.02
WINW			0.04 (0.04)	0.07	0.04 (0.04)	0.07
POS			0.42 (0.03)	0.71*	0.42 (0.03)	0.71*
AS			-0.02 (0.04)	-0.04	-0.03 (0.04)	- 0.06
CO			0.06 (0.05)	0.09	0.07 (0.05)	0.10
POS*BC					0.02 (0.04)	0.03
POS*WINW					0.05 (0.04)	0.08
R^2	0.09*		0.39*		0.39*	
F for R^2 change	0.09*		0.30*		0.004	

Note. ** p<.001, ** p<.05, BC= Boundary Control, WINW= Work Interrupting Non-work, AS = Availability Stress, CO= Connectivity Overload*

Finally, Table 9 demonstrates the results of the hierarchical linear regression analysis for Job satisfaction. The analysis tested the effects of work-life interferences on job satisfaction (H2) in addition to the moderating effect of POS in this relationship (H3b). Furthermore, the effects of availability stress and connection overload on job satisfaction (H4c, d) were also tested in this analysis. The results concluded that there is an overall significant relationship (F (9,156) = 21.247, p <.001) and that 55% of the variance in job satisfaction can be explained by age (β = 0.11, p =. 047) and POS (β = 0.71, p <. 001). Much like in the other analyses once the moderating variables were included in step 3, the R^2 change dropped significantly (ΔR^2 = .011), thereby only 1.1% of the variance being explained in the final model. The model found no significant relationships between work-life interference; boundary control and work interrupting non-work as a result H2 is rejected. Additionally, the analysis did not find POS as a significant moderator, thus H3b is rejected. Lastly, availability stress and connection overload were not

found to be significant predictors of job satisfaction resulting in the rejection of H4c and H4d. Table 10 shows an overview of the hypotheses and results.

Table 10.

Overview of Hypothesis and Results

Hypothesis	Result
H1: Employees that experience more WLI through smartphone use will indicate lower employee engagement than those that experience less WLI.	Partially Accepted
H2: Employees that experience more WLI through smartphone use will indicate lower job satisfaction than those that experience less WLI.	Rejected
H3a: The association between work-life interference and employee engagement will be moderated by POS such that it is stronger among those scoring high POS than among those scoring low POS.	Rejected
H3b: The association between work-life interference and job satisfaction will be moderated by POS such that it is stronger among those scoring high POS than among those scoring low POS.	Rejected
H4a: Employees that experience more availability stress indicate lower levels of engagement at work than those that don't.	Rejected
H4b: Employees that experience connection overload indicate lower levels of engagement at work than those that don't.	Rejected
H4c: Employees that experience availability stress indicate lower job satisfaction than those that don't.	Rejected
H4d: Employees that experience connection overload indicate lower job satisfaction than those that don't.	Rejected

5 Discussion

The investigation explored the effects of work-life interferences through smartphone use and experiencing forms of digital stress (availability stress and connection overload) on employee outcomes. Furthermore, whether the employees' perceived organisational support moderated the relationship between work-life interferences and employee outcomes was explored. The results indicated that work-

interrupting non-work behaviour is a strong predictor of Vigour (resilience and willingness to invest effort into one's work (Schaufeli, Bakker & Salanova, 2016)), thereby only partially accepting H1. However, this is still a significant implication for digital wellbeing research. Taking into consideration the work interrupting non-work dimension, Kossek and colleagues (2012) argue it is a part of cross-role interruption behaviours. The concept encapsulates employee enacted behaviours in an attempt to manage the extent to which one role interrupts the other. The finding from the current investigation implies that managing the boundaries between smartphone use for personal and work purposes can predict the energy levels at work and level of identification of employees with work. Essentially, creating boundaries to manage the negative outcomes of digital media use. This is in line with the concept of digital wellbeing, given that it refers to one's ability to manage the many roles that individuals manage on a daily basis, those of which have become intertwined as result of constant connectivity and availability (Vanden Abeele, 2021). As a result, being able to manage boundaries between work and life through smartphone use is indicative of employee digital wellbeing. This finding can add to current literature that calls out for the integration of norms and regulations regarding smartphone use after work hours in an attempt to ensure employee wellbeing (Allen, Cho & Meier, 2014; Derks & Bakker, 2014).

Despite previous literature supporting the idea that work-life interferences are associated with negative employee outcomes such as job satisfaction, engagement, or even burnout, the current study could not confirm these associations. For instance, boundary control was not a significant predictor of employee engagement or job satisfaction. Reviewing previous literature, this finding could be attributed to Kossek and colleagues' (2012) assertion that boundary control is an individual's perception of one's ability to control the boundaries. Essentially, individuals with high perceived control believe they are able to control timing and frequency of the boundary interferences (Kossek et al., 2012). In the context of this study, the scale used was adapted to serve as a more subjective measure of one's perceived control over their smartphone use for work or personal purposes during non-work hours. Perhaps the connection between the perception of boundary control and employee outcomes is not sufficient to determine without considering more of the context of the individual. In fact, previous work life interference and smartphone use after work hours research has often examined the relationship including organisational contexts, such as norms regarding connectivity (Cheung, Lun & Wang, 2021). This way, whether employees feel the need or pressure to be available is taken into consideration adding onto the underlying effects of such norms and boundary setting practices on employee outcomes.

Additionally, Derks and colleagues (2016) concluded that individuals' frequent work-related smartphone use during non-work hours is associated with reduced work-family conflict. This is relevant to the current study as reduced work-family conflict is a strong predictor of employee outcomes such as job satisfaction, engagement and intention to quit (Cloninger et al., 2015; Haar et al., 2014). Meaning that

through incorporating smartphone use in the work-life inference scale, it may have contradicted the results of this study resulting in an insignificant relationship as smartphone use during non-work hours can actually positively impact outcomes (Derks et al., 2016). Nevertheless, results concerning employee engagement as a whole in this study should be taken with caution. In an attempt to increase internal reliability, the dimension 'Absorption' was dropped resulting in only two dimensions being included in an analysis (Vigour and Dedication). The original already-shortened scale included all three dimensions to explore the concept, thus, the extent to which reliable and valid conclusions can be drawn regarding employee engagement from only two of those dimensions is quite limited.

Another finding that stands out is that there was no association between work-life interference enabled through smartphone use and job satisfaction. This finding is consistent with that of Cheung (2022) that also found no significant association between work-related smartphone use and job satisfaction. In fact, results from similar studies regarding smartphone use and job satisfaction have been noted to be relatively mixed (Cheng et al., 2022; McDaniel, O'Connor & Drouin, 2020; Wright et al., 2014). A possible explanation for this is the idea that smartphone use for work purposes can also bring advantages as well as disadvantages; from accessing information, clients or colleagues anywhere and at any time to feeling pressure to be constantly available and lacking the ability to disconnect from work at all (Cheung, Lun & Wang, 2022; Laethem, Van Vianen & Derks, 2018; Li & Lin, 2019). The mixed findings call for further research into the relationship between employees and smartphone use under the digital wellbeing framework which would include a deeper investigation into context and person -specific factors that may affect these results (Vanden Abeele, 2021).

With respect to the moderation hypothesis regarding POS, the outcome is contrary to previous studies that have identified POS as a significant moderator of the relationship between work-life conflict and employee outcomes such as job satisfaction and employee engagement (Rashid et al.,2022). This study concluded that POS did not moderate the relationship between work-life inference enabled through smartphone use and employee engagement and job satisfaction. The discrepancy could be attributed to the broad nature of POS as a measurement for the purpose of this study. As highlighted by Eisenberg and colleagues (1986), POS refers to a more general employee perception of the organisation's concern of their wellbeing and their work. However, more specific to constant availability concerns is the concept of organisational norm of connectivity. The concept describes the collective understanding of the need to be connected and to respond to organisational messages during work hours (Lu et al., 2005; Venkatesh & Davis, 2000). Relevantly, Cheung, Lun and Wang (2021) found that the organisational norm of connectivity was positively associated with work-related smartphone use after work. These implications suggest perceived organisational support may have lacked a direct association to organisational norms regarding staying connected as a result did not serve as a buffer between work-life interference through

smartphone use and employee outcomes. This is supported by one interesting finding from the regression analyses, that POS was found to be a significant predictor of employee engagement and job satisfaction, but no relation was found with regards to work-life interferences. Therefore, it is suggested that future researchers explore the promising association between organisational norms of connectivity and work-life interferences through smartphone use. Lastly, the significant association between perceived organisational support and employee engagement and job satisfaction highlights the importance of ensuring a supportive environment in an organisation to ensure employee wellbeing (Kossek et al., 2011).

Another significant finding that is of interest is that POS was negatively correlated with boundary control. Meaning that employees that have high perceived organisational support may have a decreased awareness of boundaries. This finding can be supported by Krishnan and Mary (2012) that identified a relationship between positive perceived organisational support and a decrease in withdrawal behaviours. In relation to this finding, the opposite could be the case, low perceived organisational support led to an increase in boundary setting with regards to availability and connectivity after work hours. Individuals may not feel invested in the organisation to the extent that they attend to work-related matters after work hours (Derks & Bakker, 2014; Derks et al., 2015). Further highlighting the necessity for a supportive organisational environment.

Concerning the relationship between digital stress and employee outcomes, contrary to the hypotheses, this study was unable to identify an association between availability stress and connection overload and employee engagement and job satisfaction. A reason for this could be attributed to the fact that the conceptualisation of digital stress utilised in this study was constructed on observations made among adolescents and young adults. The average age of participants in the current study (M= 40.8) exceeds the age range under which the concept was studied. Furthermore, age was found as a significant predictor for job satisfaction and employee engagement. There is a significant amount of evidence that suggests the experience of other digital stress dimensions; communication load and internet multitasking can vary between age groups (Reinecke et al., 2016). Reinecke and colleagues (2016) claim that over the lifespan, information communication technology (ICT) use decreases, this results in younger users (that is, adolescents and young adults) engaging in more multitasking behaviours more intensely and as a result, tend to experience more consequences. This can also be accredited to the finding that older individuals are better at coping with internet multitasking as they more actively avoid situations that exceed their cognitive capacity. Whereas younger individuals have a higher risk of experiencing conflict between habitual multi-tasking and other goals and obligations (Reinecke et al., 2016). Essentially, older users have more control therefore, experience less digital stress. This could explain how digital stress dimensions, availability stress and connection overload, were not significant predictors of engagement and job satisfaction. However, in order to determine this, future studies could look into further digital

stress dimensions and how they interact and impact employee outcomes in addition to comparing different age groups. To test this, the current study could be replicated to examine a younger age group.

Interestingly, availability stress and connection overload were positively correlated with boundary control and work-interrupting non work behaviours. Indicating that experiencing digital stress can influence the manner in which someone manages smartphone boundaries between work and life. This interesting finding can be accounted for by foregoing literature on the effects of technology overload and technostress on work-life balance. Ma, Ollier-Malaterre and Lu (2021) found a negative association between experiencing technostress and work-life balance, supporting the finding that stress experienced as a result of technology use can affect and is associated with boundary management. On top of this, Kossek (2016) discussed how individuals that feel obliged to reply to work communication during non-work hours may react by setting boundaries to limit work behaviours during off-work hours. The discussed findings emphasise how boundary management can be affected by feelings of stress induced by technology use; therefore, they call for further research on the effects of digital stress regarding employees' experience with digital media use.

5.1 Limitations and Future Research

As with any investigation there are certain constraints, this investigation contains several limitations with regards to the data collection method, the international nature of the sample, adapting certain scales and the criteria developed for participant selection.

Firstly, in this investigation one of the limitations identified regards the data collection method of using a survey exchange platform (SurveyCircle). Despite being able to specify the criteria for participation, one does not have control over who answers the survey and whether it was truthfully completed (Andrade, 2020). Furthermore, Dowrick and colleagues (2015) emphasise that using scales which have not been validated in the population of interest may be subject to measurement errors and conclusions drawn cannot be made with total confidence. Despite the scales used having been validated among the employee populations, some were adapted for the purpose of this study potentially affecting the reliability of the results derived from this study. In addition, the majority of the sample (37.5%) being from Spain while using scales that had not been validated with that specific target group should be taken into account as a possible limitation. In fact, regarding the work-life interference scale, Kossek and colleagues (2012) emphasise the scale developed was tested on large corporations in the USA. As part of their limitations the authors note that the results were solely derived from this population thereby, given the relatively international sample of the study conducted, as well as having adapted the scale, being able to derive valid and reliable conclusions with regards to work-life interferences is somewhat limited. Equally important, is the investigation by Haar and colleagues (2014) that explored the effects of work-

life balance (WLB) on job satisfaction across seven cultures (New Zealand, France, Italy, Spain, Malaysia and China). The authors highlighted that WLB was a predictor of job satisfaction across all cultures however, that high levels of WLB were more positively associated with job satisfaction for individuals in individualistic cultures compared to those in collectivistic. Indicating that there is indeed a possible difference in the extent to which work-life balance affects job satisfaction depending on cultural dimensions. The study carried out in this paper consisted mainly of Spanish, German and Dutch participants and if compared regarding Individualism, Germany and the Netherlands obtain a higher score compared to Spain (which lies more on the collectivistic) (House et al., 2004). Thus, given the relatively international nature of the sample, the conflict cultural dimensions should be taken as a possible limitation.

To add onto the possible limitations of gathering an international sample, different cultures can determine the what smartphones are used, furthermore their customs and labour laws may have an impact on such outcomes (Baron & af Segerstad, 2010) In fact, some countries, such as France have begun to establish strict laws in favour of the right to disconnect, "referring to a worker's right to be able to disengage from work and refrain from engaging in work-related electronic communications, such as emails or other messages, during non-work hours" (EurWORK, 2021). As a result, the enactment of this right by law may influence individuals' experience with digital media and ultimately digital wellbeing (Hesselberth, 2018). In relation to this, as the right to disconnect is becoming more and more prevalent in societal discourse, organisations like BMW, for example, have begun to implement boundaries (e.g. blocking any emails from entering an employee's inbox after 5 PM) with digital devices (Hesselberth, 2018). Future research could look into how these boundaries can impact employee outcomes by comparing organisations that have such boundaries implemented versus those that do not.

Another possible limitation in this study is that digital stress is a phenomenon that has been studied in social science research combined with psychology. Similar phenomena such as technostress (the stress that occurs as a result of having to keep up with new developments in technology and learning new skills) is a relevant topic of employee wellbeing research as the concept has been associated with poor employee outcomes, as well as lack of boundary management (Kot, 2022). This notion, however, is limited to technology in the workplace specifically. Given that the lines between individuals' roles are becoming more and more blurred as a result of digital media, future research should consider exploring the effects of the consequences (digital stress for example) in the work context, especially with remote work becoming more common (Ozimek, 2020).

Hall and colleagues (2021) called for further investigation into digital stress as a mediator or moderator between digital media use and outcomes. The authors claim that digital stress conceptualised as a moderator should be "thought of as emerging from characteristics of the individual, the peer

environment or available coping resources" (Hall et al., 2021; p. 11). However, regarding moderation, in this study digital stress factors were tested as predictors for which the results were insignificant. In order for a variable to be included as a moderator, it must be a significant predictor (Hayes, 2013) therefore, at this stage in digital wellbeing research examining its moderation effects may not be significant. However, so far in literature digital stress has been associated with negative psychological outcomes, those of which have also been proven to impact employee outcomes. Previous research such as Thomee and colleagues (2010) or Mai and colleagues (2015) has created links between experiencing digital stress and negative psychological outcomes, outcomes that have been directly associated with negative work outcomes (Dimoff & Kelloway, 2019; Lu, Yu & Shan, 2022). Therefore, a mediation model is proposed for future research at this point in time. Given that there are no direct associations having been made in literature so far, future research should consider exploring a mediating relationship including psychological states (perhaps anxiety), digital stress and employee outcomes.

For confidentiality reasons, many organisations provide employees with company digital devices (i.e. phones or laptops). In this research, it was not specified whether the smartphone asked about was personal or a company-issued device thus, participants with such a device may have struggled to answer, thereby affecting the actual phenomenon being measured. In fact, little research has been done on the effects of company-issued smartphones on employees. Yet, Burney (2019) set out to explore whether the use of a personal smartphone, only a company-issued one, or a combination of both had an impact on work life balance through a mixed method approach. The study concluded that those utilising only the company-issued smartphone experienced more effects in relation to work-life balance. Thereby, calling for further research into differentiating between individuals that use their personal phone for work and those that use a company-issued phone.

Lastly, to measure digital wellbeing as proposed by the conceptual model, a relatively new concept, pre-existing scales were used and adapted creating certain limitations and possibly resulting in measurement errors. Therefore, future research should consider developing measurements specific to digital wellbeing in specific contexts. That is, to further explore the concept from a qualitative lens to derive themes and patterns that may serve in developing measures to further explore digital wellbeing quantitatively. Given its subjective nature, a qualitative outlook will allow for a deeper understanding as to how individuals construct their reality and how they choose to navigate the advantages and disadvantages related to digital media use (Fossey et al., 2002). What is essential is that we continue to explore digital wellbeing, its implications and its effects in order to gather a deeper understanding of our relationship with digital media and the role it plays in our personal or work lives. Most importantly, how we, as a society, manage the changes brought on by our own inventions.

5.2 Conclusion and Implications

In conclusion, this study has shined a light onto the importance of further investigating the digital wellbeing of employees. Using the conceptualisation introduced by Vanden Abeele (2021), this investigation included person-, context-, and device-specific (i.e., smartphone use role in work life-interferences) factors to examine digital wellbeing and explore its effects on employees. The person-specific factor was examined through the variables of digital stress and work-life interference. Through the adaptation of the scales, the two variables encapsulated the personal experience with mobile digital devices. The context-specific factor was realised in this study through the targeted participants being employees working for an organisation. Additionally, the context factor was realised through exploring the effects of work-life balance and perceived organisational support on employee engagement and job satisfaction, variables that are specific to the working environment. Hence, it allowed this investigation to explore the relationship between digital wellbeing in the workplace and employee outcomes. Lastly, the device-specific factor was included through the specification of smartphone use. Given the relatively new conceptualisation, this study adds onto ongoing research by investigating the work context. In doing so this investigation is one small step closer to bridging the gap between disciplines that touched upon the effects of digital wellbeing and (dis)connectivity and the conceptual model.

The conclusions drawn from this research can be used by employee wellbeing experts to better improve the working environment for individuals. Thereby, concerning the digital wellbeing, which as discussed can have huge impacts on individuals' personal and professional outcomes such as facilitating the interference of work with personal life and as a result affecting engagement at work (Ďuranová & Ohly, 2016). In addition, the discussions in this study regarding the effects of digital wellbeing on employee outcomes must be taken into account as well by governmental bodies when considering the implementation of connectivity regulations in the scope of the so-called right to disconnect for employees outside of their working time (Hesselberth, 2018). Having no established boundaries regarding connectivity has proven to be detrimental to employee wellbeing therefore, organisations should consider setting explicit rules regarding digital media use for work purposes during personal time (Cheung, Lun & Wang, 2021). Doing so, organisations can limit the possible stress, pressure and expectations associated with constant availability regarding work (Derks et al., 2015). As a matter of fact, these organisations will be creating an environment that acknowledges and keeps up with the potential effects and drawbacks that come with use of digital devices in our ever-evolving digitalised society.

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Appendices

Appendix A – Final Survey

Screen 1- **Consent Form**

Dear Participant,

You are invited to take part in my research study. My name is Lidia Menendez Castro and this survey is for my master thesis at the Erasmus University Rotterdam. I really appreciate you taking the time to fill it in.

The purpose of this study is to explore the digital wellbeing of employees as well as its effects on work outcomes.

It will take around 10 minutes to fill out. Please read the questions carefully and take your time!

REQUIREMENTS
For this study I am looking for individuals that are **full-time employees** and are **older than 18 years of age** to fill out the survey.

PARTICIPANT RIGHTS
All your data remain completely confidential and are collected in anonymous form. The data will only be used for the purposes of this research. I will not be able to identify you.

If you now decide not to participate in this research, this will not affect you. If you decide to cease your cooperation while filling in the survey, you are able to withdraw from the survey at any moment. There are no repercussions.

CONTACT DETAILS
If you have questions about this research, in advance or afterwards, you can contact the responsible researcher, Lidia Menendez Castro at: 666341lm@student.eur.nl

If you understand the information above and freely consent to participate in this study, click on the "I agree" button below to start the questionnaire.

P.S: This survey contains credits to get free survey responses at SurveyCircle

- o I agree
- o I do not agree

Screen 2 – Demographics

Q1_Full-time

Before entering the survey, please complete a couple of questions about yourself.

Are you a full-time employee?

- o Yes
- o No

Q2_Remote

Do you work from home/remotely?

- o Yes
- o No
- o Sometimes

Q2.1_OftenRemote

If so, how often do you work from home/remotely?

- o Once a week
- o Twice a week
- o Three times a week
- o Four times a week
- o Always

Q3_ Age

What is your age?

(Drop down)
17 years or younger - Older than 68

Q4_Gender

What gender do you identify with?

- o Female
- o Male
- o Non-binary
- o Other [text entry]
- o I'd rather not say

Q5_Country

What is your nationality?

(Drop-down)

Screen 3 – Work-Life Smartphone facilitated Interference

Q6_WLI

Now I would like to find out more about your smartphone use during non-work hours.

Please indicate to what extent you agree with the following statements.

Original Items	Adapted Items	**Strongly Disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly Agree**
I regularly bring work home.	(Q6_1) **I regularly bring work home.**	1	2	3	4	5
I respond to work-related communications (e.g., emails, texts, and phone calls) during my personal time away from work.	(Q6_2) **I respond to work-related communications on my smartphone (e.g. emails, texts, and phone calls) during my personal time.**	1	2	3	4	5
I control whether I am able to keep my work and personal life separate.	(Q6_3) **I control whether I am able to keep separate the use of my smartphone for work and personal use.** (*BC*)	1	2	3	4	5
I work during my vacations.	(Q6_4) **I use my smartphone for work-related reasons during my vacations.**	1	2	3	4	5
I control whether I have clear boundaries between my work and personal life.	(Q6_5) **I control whether I have clear boundaries between work and personal use of my smartphone.** (*BC*)	1	2	3	4	5

I allow work to interrupt me when I spend time with my family or friends.	(Q6_6) **I allow my smartphone to interrupt me for work-related reasons when I spend time with my family or friends.**	1	2	3	4	5
I usually bring work materials with me when I attend personal or family activities	(Q6_7) **I usually use my smartphone for work-related reasons when I attend personal or family activities.**	1	2	3	4	5
I control whether I combine my work and personal life activities throughout the day.	(Q6_8) **I control whether I combine my smartphone for work and personal use throughout the day**. (*BC*)	1	2	3	4	5

Screen 4 – Digital Stress

Q7_DS

I would like to ask you to what extent you agree with the following statements regarding smartphone use.

Original Items	Adapted Items	**Strongly Disagree**	**Disagree**	**Neither agree nor disagree**	**Agree**	**Strongly Agree**
My friends expect me to be constantly available online	(Q7_1) **My work expects me to be constantly available online.**	1	2	3	4	5
For my friends, it is important that I am constantly available online.	(Q7_2) **For my work, it is important that I am constantly available online.**	1	2	3	4	5

Most of my friends approve of my being constantly available online	(Q7_3) **My work approves of me being constantly available online.**	1	2	3	4	5
I feel a social obligation to be constantly available online	(Q7_4) **I feel a work obligation to be constantly available online**.	1	2	3	4	5
(Q7_5) **I have to check too many notifications.**		1	2	3	4	5
(Q7_6) **I feel overwhelmed with the flow of messages/notifications on my phone.**		1	2	3	4	5
(Q7_7) **It feels like there is always a reminder – like a flashing light or buzz – that there is some other message I need to attend to**.		1	2	3	4	5
(Q7_8) **I feel stress because I must shift through a lot of unimportant notifications to get to the important ones**.		1	2	3	4	5
(Q7_9) **On top of other things I must do, keeping up with notifications is a chore.**		1	2	3	4	5
(Q7_10) **I spend too much time responding to notifications/messages.**		1	2	3	4	5

Screen 5- Perceived Organisational Support

Q8_POS

Please indicate the extent to which you agree with the following statements regarding the organisation you work at.

Item	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
(Q8_1) **The organisation strongly considers**	1	2	3	4	5	6	7

my goals and values.							
(Q8_2) **Help is available from the organisation when I have a problem.**	1	2	3	4	5	6	7
(Q8_3) **The organisation would forgive an honest mistake on my part.**	1	2	3	4	5	6	7
(Q8_4) **The organisation is willing to help me when I need a special favour.**	1	2	3	4	5	6	7
(Q8_5) **If given the opportunity, the organisation would take advantage of me.**	1	2	3	4	5	6	7
(Q8_6) **My organisation shows very little concern for me.**	1	2	3	4	5	6	7
(Q8_7) **The organisation cares about my opinions.**	1	2	3	4	5	6	7

Screen 6 – Employee Engagement

Q9_Engagement

You are almost at the end of the survey!

The following statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job.

Item	Never	Rarely	Almost Never	Sometimes	Often	Very Often	Always
(Q9_1) **At my work, I feel bursting with energy**	0	1	2	3	4	5	6
(Q9_2) **At my job, I feel strong and vigorous**	0	1	2	3	4	5	6
(Q9_3) **I am enthusiastic about my job**	0	1	2	3	4	5	6
(Q9_4) **My job inspires me**	0	1	2	3	4	5	6
(Q9_5) **When I get up in the morning, I feel like going to work.**	0	1	2	3	4	5	6
(Q9_6) **I feel happy when I am working intensely**	0	1	2	3	4	5	6
(Q9_7) **I am proud of the work that I do**	0	1	2	3	4	5	6
(Q9_8) **I am immersed in my work**	0	1	2	3	4	5	6
(Q9_9) **I get carried away when I'm working**	0	1	2	3	4	5	6

Screen 7 – Job Satisfaction

Q10_JS

Please indicate your degree of agreement with the following statements. When finished, proceed to the next page.

Item	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
(Q10_1) **I receive recognition for a job well done.**	1	2	3	4	5
(Q10_2) **I feel close to the people at work.**	1	2	3	4	5
(Q10_3) **I feel good about working at this company.**	1	2	3	4	5
(Q10_4) **I feel secure about my job.**	1	2	3	4	5
(Q10_5) **I believe management is concerned about me.**	1	2	3	4	5
(Q10_6) **On the whole, I believe work is good for my physical health.**	1	2	3	4	5
(Q10_7) **My wages are good.**	1	2	3	4	5
(Q10_8) **All my talents and skills are used at work.**	1	2	3	4	5
(Q10_9) **I get along with my supervisors.**	1	2	3	4	5
(Q10_10) **I feel good about my job.**	1	2	3	4	5

Screen 8 _ End

You have reached the end of this survey.

Thank you very much for your participation!

Please click the arrow to save your responses!

If you have any comments, questions about the research or would like to be informed about the outcome of this investigation please feel free to contact the researcher at: 666341lm@student.eur.nl

For SurveyCircle users (www.surveycircle.com): The Survey Code is: QZC6-NYB8-3N97-