# THE INCREASED USE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) AMONG EMPLOYEES: IMPLICATIONS FOR WORK-LIFE INTERACTION

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**Abstract**

Technology has become one of society's everyday functional tools, changing rapidly and providing widespread mobility. In South Africa alone, the number of Internet users grew from 8,5 million to 24,9 million in only three years (2011-2014). Currently, 90 per cent of these users access this facility from their mobile devices. Statistics illustrate that South Africans are moving towards a continuously connected lifestyle, a situation in which information and communication technology (ICT) seems to have become ubiquitous. Given the rapid growth of ITC technology and its absorption into people's lives (both personally and professionally), the general aim of the present research was to investigate the use of ICT among employees and how it affects their work-life interaction (WLI).

The researcher employed a qualitative research approach in accordance with which a sample of 25 employees was interviewed. Interviews were recorded, transcribed and processed by means of thematic analyses. Three themes with corresponding sub-themes were extracted: use of ICT (i.e. in both work and family domains); challenges that ICT use presents; and the way in which employees manage their WLI by means of ICT. The participants experienced WLI as mostly negative. However, they also mentioned two different approaches that helped them manage interaction between their work and family domains. These approaches entail 1) applying limits to their use of ICT, and 2) using ICT to create flexibility.

This article advises that organisations should consider adopting ICT to assist their employees in the management of these two domains. This could be done in two ways. First, organisations could implement a code of conduct or provide guidelines for eliminating the intrusive and excessive use of ICT, especially after working hours. Secondly, organisations could pilot or implement flexible working hours and possible telecommuting initiatives.

**Key words:** technological devices, ICT management, ICT devices, work-life balance, work-life-interaction, qualitative research

**JEL: O33**

## 1 Introduction

The world is changing rapidly, and is becoming increasingly technologically advanced. Everyday items are becoming 'smart' (i.e. smartphones, smart cars and smart homes). This gives users the opportunity of connecting, accessing and distributing information at the touch of a button, mostly to increase their quality of life (Grogan, 2012). Organisations are adopting this trend by investing capital on a large scale in information and communication technology (ICT) in order to remain competitive, and to increase efficiency and cost-effectiveness (Tusubira & Mulira, 2004). ICT, according to Chesley and Johnson (2010:1), refers to "technological platforms (e.g. the Internet) and devices (e.g. mobile phones, computers, personal digital assistants [PDA]) widely used by individuals to communicate with others as well as to gather and process information".

The South African Advertising Research Foundation (SAARF, 2012a) found that, in 2011, 81 per cent of the South African adult population (15 years and older), owned mobile phones, 81 per cent of whom had a private subscription for their instrument. The SAARF also found that 12 per

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cent of the population accessed the Internet from their home, by using a computer, or a mobile phone, and 56 per cent used the Internet for communication purposes (social networking, e-mail, instant messaging and chats) (SAARF, 2012b). Van Aardt and Shai (2010) indicate that, in Gauteng High Schools, 98 per cent of the learners own mobile phones. These results illustrate the high incidence of ICT adoption in families. In South Africa, statistics report 70,4 million mobile subscriptions (GSMA, 2014), indicating the use of more than one mobile phone per person in the country. The rate of Internet infiltration in the country increased drastically from a reported 8,5 million active Internet users in 2011 (SAPA, 2012), to 24,9 active users in 2014 (Internetlivestats, 2014). This amounts to a 192 per cent growth rate and results in an increase in Africa's Internet capacity from 3,4GB in 2009 to 25.18GB in the year ending 2012 (TechNimbus, 2011). From these statistics, it is evident that the use of ICT is on the increase. Not only has the use of ICT devices increased, but the number of available devices has also proliferated, with tablets and gaming consoles showing a distinct rise in sales. South African sales of tablet PCs (such as the iPad and Galaxy Tab) has increased by 46 per cent since the beginning of 2013 (BusinessTech, 2013).

Given this background, in order to remain competitive in a fast-paced and constantly changing world-wide business environment, organisations have to be productive 'around the clock' (Piazza, 2004). This places additional pressure on employees. Essentially, it implies that management requires their staff neither to go off duty, nor to leave the office space. This situation gives managers a power over their employees that stretches beyond the physical work environment (Piazza, 2004). Piazza (2004) adds that this condition has essentially had the result that the business's ICT and the human employees began forming a unified system.

Chesley (2014) refers to the these developments as 'work extension' and explains that such an extension occurs when ICT is incorporated into an organisation's practices, which enables the employees to carry out paid work in a non-working environment. The latter is made possible by using fully accessible ICT devices, which are 'always connected'. ICT devices thus began to play a more prominent role in people's ' personal domain (Xobni, 2010).

Perrons (2003) points out that ICT enables employees to take home paid work, thereby meeting demands, but, in a negative sense, it means that work invades the family domain. What was once deemed impossible (working from home), is now possible and easily becomes expected of employees (Roberts, 2007). This also pressures them to work during the weekends. Hoonakker (2014) maintains that, although ICT has made it increasingly easier to work in areas other than the workplace, it has obscured the borders between work and family life. Xobni (2010) concurs, that 72 per cent of Americans and 68 per cent of British citizens check their emails on non-working days as well (such as during vacations or weekends). Selwyn (2004) found a continuing influence by organisations that enrol their employees into the information age for a life-long commitment, as they require employees to use and learn how to use ICT. This continuous connectedness among and availability of employees may create spillover between the work and family environment. Chesley (2005) found that the persistent use of communication through ICT can be linked significantly to increased distress, decreased family satisfaction and negative work-life interaction (hereafter abbreviated as WLI), or conflict in both directions: WLI or life-work-interaction (LWI).

Demerouti, Derks, Brummelhuis and Bakker (2014) summarised this situation succinctly: Organisations embrace the new world of work brought about by ICT, while the influence of these devices on the work domain is still unclear. More research is therefore needed on the impact of the new world of work on society.' In this sense the new world of work can be defined by Demerouti et al. (2014) as the flexibility provided in the timing of work, the place of work and the various options provided for communication with co-workers, supervisors and clients through contemporary ICT.

Given this background, the general aim of the present research was to investigate the use of ICT among employees and its impact on their WLI, by focusing on the following research questions:

- What is the role of ICT in employees' work domain?

- What role does ICT play in employees' family domain or domains outside their work (personal life)?
- How does ICT influence employees' work-life interaction (WLI)?

## 2 Literature review

### 2.1 Work-life interaction

Initially research on the interaction between the work and family domains was based on the assumption that these two domains should be viewed as separate spheres. Tension between the domains was designated as work-family conflict (Edwards & Rothbard, 2000). Work-family conflict was first defined by Greenhaus and Beutell (1985:77) as "a form of inter-role conflict in which role pressures from the work and family domains are mutually incompatible".

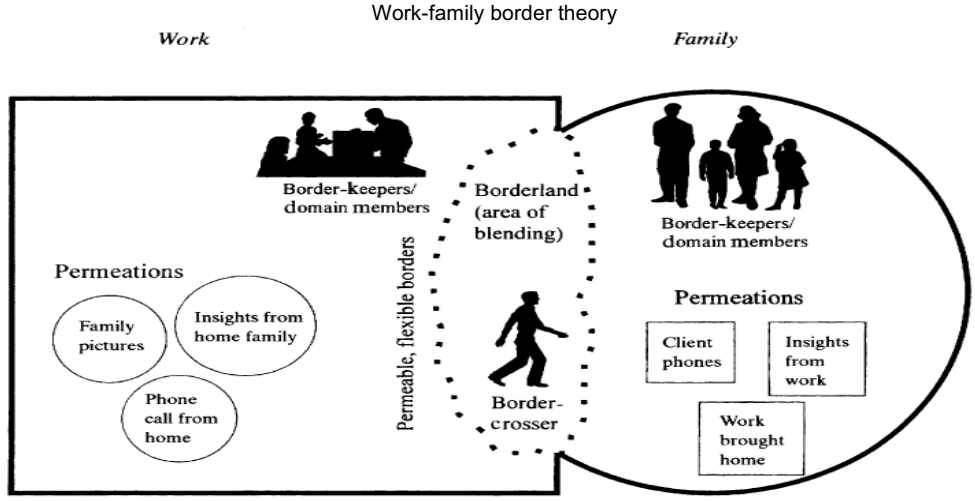
Eby, Casper, Lockwood, Bordeaux and Brinley (2005) point out that the relationships between work and family are complex and should be understood as multi-dimensional. To outline this complexity Greenhaus and Powell (2006) propose dividing interaction between work and family into two different structures - role conflict (compliance with one role makes compliance with the other role more difficult); and role enrichment (participating in multiple roles are considered a positive influence on the individual's well-being).

Extensive international research has shown that both work-family conflict and work-family enrichment have a bi-directional nature (Grzywacz & Marks, 2000; Kinnunen, Feldt, Guerts, & Pulkkinen, 2006; Odle-Dusseau, Brit & Greene-Shortridge, 2012). This implies that the work and family domains function independently in both directions. This finding resulted in a steady stream of research into the interaction between work and other domains in employees' lives (e.g., Demerouti, Bakker, &Voydanoff, 2010; Fiksenbaum, 2014; Geurts, Taris, Kompier, Dikkers, Van Hooff, & Kinnunen, 2005; Greenhaus & Kossek, 2014).

Geurts et al. (2005) add to this notion by examining the overall concept of work-home interference and defining it as an interactive process in which employees' functioning in one domain affects their functioning in another domain, both positively and negatively. Researchers thus began to investigate the possibility of maintaining a balance between the positive and negative interaction between domains, known as a work-life balance. Clark (2000:751) defines work-life balance as "satisfaction and good functioning at work and at home, with minimum of role conflict". One of the most notable findings by Mieczakowski,Goldhaber and Clarkson (2010) is that the majority of adults mentioned that ICT interfered with their family domain by allowing their work to encroach on their family time. As pointed out previously, this phenomenon is also known as work-life interaction (WLI). In the present research, WLI includes the concept's well-known synonyms, such as work-life balance, work-life interference and work-family conflict.

Clark (2000) explains WLI by his design, the border theory. Central to his theory is the idea that work and family life constitutes different domains, each with its own border that influences each other. He continues to explain that work and family each has contrasting purposes and cultures, and can thus be expressed as two different 'countries'. Each 'country', according to Clark (2000), varies in terms of language or word use, acceptable behaviour and manners whereby to accomplish tasks. For instance, at work it is acceptable to read and reply to e-mails while in a meeting (using mobile ICT devices), but at home the same action is considered bad manners at the dinner table. According to the border theory (Clark, 2000) people are border-crossers and adapt their focus, goals and interpersonal style to fit each 'country'. For some individuals, the crossing requires a slight adjustment, but for others it may demand extreme adaptation. Figure 1 below illustrates the work-family border theory as proposed by Clark (2000).

**Figure 1**
Work-family border theory




*Source: Clark (2000:754)*

According to Tenakoon (2007), ICT provided seamless accessibility and availability of work tasks outside of work, thereby blurring the borders between these two 'countries' (i.e. the borderland, thus creating border-crossers, cf. Clark, 2000).This process creates spillover (interaction) between work and family in both directions (work to family and family to work). Chesley (2005) indicates that the persistent use of communication with ICT is significantly linked to increased distress, decreased family satisfaction and negative WLI in both directions. In contrast, Wajcman, Bittman and Brown (2008) maintain that mobile phones are not necessarily an extension of work. These devices are used more to contact family and friends rather than co-workers. This indicates that crossing from the *family to work* domain is more prevalent than in the opposite direction. The present research suggests that the border between work and family is gradually disappearing owing to the rapid increase in the use of ICT in people's lives.

### *Work-life interaction and ICT research*

Demerouti et al. (2014) maintain that the new ways of working brought about by ICT introduces three key characteristics into employees' functions. First, ICT provides employees with flexible working hours; secondly, it allows them flexibility in their place of work; and finally it allows them various options for communicating with co-workers, supervisors and clients. All of these options could mean that ICT invades an employee's family domain.

Recent research into the role of ICT in WLI mostly indicated that ICT causes some sort of interference between the work and family domains (Boswell & Olson-Buchanan, 2007; Demerouti et al., 2014; Jensen, 2013).Boswell and Olson-Buchanan (2007) found that use of ICT devices after hours relates positively to work-life conflict. Demerouti et al. (2014) add that ICT eliminates the boundaries between work and home, thereby increasing the employees' stress levels. Jensen (2013) also found that the negative effect of ICT is an increased expectation that employees should be available 24/7.

Although most researchers identified ICT as a contributor to work-life interference, Demerouti et al. (2014) and Gajendran and Harrison (2007), found that ICT (especially telecommuting, brought about by ICT) to a slight degree, also contributes to work-life balance. Demerouti et al. (2014) point out that ICT allows employees to use their time more efficiently and choose their location of work, which thus minimises the work-life interference.

Limited research has been done in South Africa on the role ICT plays in employees' WLI. Existing research states that improving one's competence with the use of information technology could reduce the impact of determinants from the work domain (De Villiers & Kotze, 2003).

Hoffmann, Farrel and de Klerk (2004) add that employees participating in telecommuting made possible by ICT have found their work-life balance improving considerably.

The possibility of such an improvement, although limited, supports the notion that ICT (or certain of its variations) may contribute to a balance between the domains of work and family life. Hubers, Schwanen and Dijst (2011), however, point out that the flexibility provided by ICT devices alone is not sufficient to manage the different and challenging work and the related domestic- tasks. Further research is therefore needed on how ICT impacts on employees' WLI.

Given the background and literature overview, the specific objectives of the research were as follows:

- to determine the role of ICT in employees' work domain and in the domains outside their work; and
- to determine how ICT influences the employees' WLI.

Subsequently, the research approach will be discussed as well as the method used in the present research.

## 3 Methodology

An exploratory qualitative approach was followed in the present research, using semi-structured interviews. According to Maxwell (2012:viii), qualitative research is intended to lead the researcher to a better understanding of the following:

- the meanings and perspectives of the people one studies;
- how these perspectives shape and are shaped by their physical, social, and cultural context; and
- the specific processes involved in maintaining or altering these phenomena and relationships

### 3.1 Sampling

Non-probability, purposive sampling was used, including snowball sampling. Purposive sampling implies that certain inclusion criteria were compiled, and participants had to comply with these requirements in order to be selected (De Vos, Delport, Fouché, & Strydom, 2011). Purposive sampling is designed to enhance individuals' or groups' understanding of experiences and is often employed in qualitative research, given its goal and objective (Devers & Franklin, 2000). For the present research, the inclusion criteria required the participants to:

1) own and use more than two 'always- connected' ICT devices for both work and personal purposes;
2) be willing to take part in the interview; and
3) be employed in a professional organisation where ICT forms part of their everyday working life. For the purpose of this research, the term 'always connected' refers to ICT devices that allow the employees to be connected to the Internet and their business systems at any given time.

Data saturation was reached after 25 interviews, which means that further interviews did not provide any new or additional information to the phenomena in question within the context (Yin, 2009). The sample comprised 64 per cent men and the participants' ages ranged from 26 to 61 years old. Nine of the participants were between the ages of 20 to 29 (36 per cent); seven between 30 and 49 (28 per cent); and the remaining nine participants were between 50 and 61 years old (36 per cent). Further, 72 per cent of the participants indicated that their home language was Afrikaans and they were married, while 63 per cent of these married participants had children. The participants were employed in various sectors like finance, education, law, medical and mining. In this sample, 60 per cent of the participants indicated that they used three ICT devices and 32 per cent said they used four or more on a daily basis.

## 3.2 Data collection

At the outset of the data collection, the researcher contacted the participants to establish a date and time for their interview. The objectives were concerned more with the employees' perspective and views on the topic rather than on those of the organisation. Therefore, no specific organisations were targeted. Further, considering the diverse use of ICT in professional organisations, it was not necessary to target specific organisations, which means that no gatekeeper or mediator was required. No organisations are mentioned by name in the research report so permission from the participants' employers was not required. The researcher gave the participants a brief overview of the research, and informed them that all their information would be kept confidential, to be used only for the purposes of this research. Each participant was informed about the research process and each signed an informed consent form prior to the interviews. There was an opportunity for the participants to ask questions before the interview was scheduled.

During the semi-structured interviews, each participant had to answer specific queries guided by the research questions. The following specific questions were put to the participants:

- For what purposes and reasons do you use your ICT devices at work?
- In your personal life (including all the domains outside your work), for what purposes do you use your ICT devices?
- How do you currently view or experience your work-life interaction?
- What influence do you think your use of ICT has on the interaction between your work and personal life?

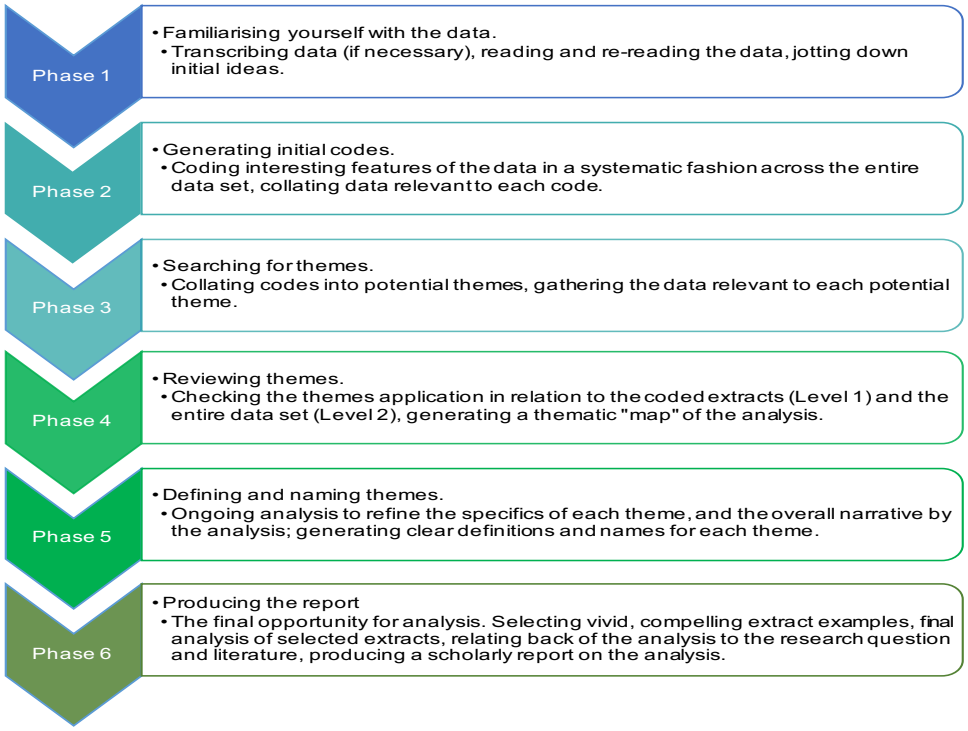
The interviews were recorded verbatim and field notes were taken (completed after each interview) to capture the researcher's thoughts during the interviews. Bogdan and Biklen (1998:107-108) consider these notes to be "the written account of what the researcher hears, sees, experiences, and thinks in the course of collecting and reflecting on the data in a qualitative study". To ensure confidentiality, the recordings, notes and completed biographical forms were stored in a safe place– a procedure that was duly communicated to the participants. A list of the participants was compiled, in which each was allocated a number. Throughout the research, the corresponding number of a particular participant was used in storing the relevant forms, recordings and data confidentially.

## 3.3 Data analysis

Using the thematic analysis, the researcher analysed the verbatim-transcribed interviews along with the field notes. Thematic analysis is the process of identifying, analysing and reporting patterns from responses or data, which allows the researcher to organise and describe the data in detail (Braun & Clarke, 2006). The six steps as summarised by Braun and Clark (2006) were followed, as indicated in Figure 2 below.

During the study, the researcher ensured quality data by attempting to adhere to the principles suggested by Mays and Pope (2000). These include the following: validation of the respondents; clear exposition of the methods used for data collection and analysis; reflexivity; attention to negative cases; and fair dealing. The respondent validation entailed contacting a small sample of participants (chosen randomly) to verify the findings. The researcher ensured quality data by first clearly outlining the process and procedures followed as part of the data collection and analysis, and then by discussing and exploring with the co-coder the possible contradictory elements in the research. Further, the researcher provided detailed information and in-depth methodological descriptions of the phenomenon in question and made sure that the participants were from diverse backgrounds and were employed in different industries to guarantee 'fair dealing'. Lastly, the researcher made use of a co-coder, as stated above, to help establish the validity and consistency of the data (Du Plessis & Human, 2007).

**Figure 2**
Summary of the six phases of thematic analysis




*Source: (Braun & Clarke, 2006:35)*

## 4 Findings

The researcher extracted three main themes from the data analyses. The first theme followed from the first two questions, determining how the participants used their ICT (i.e. in both their work and their family domains). This theme answers mainly to the objective regarding the role of ICT in the employees' work domain and the external domains. After explaining how they used ICT, the employees were asked to elaborate on ICT and their WLI. This second theme relates to the corresponding research questions on this topic. The last theme concerned the challenges the participants experienced when using their ICT. Although this theme was not proposed in a research objective, during the interviews the participants identified clear challenges when using ICT. Subsequently, these themes and sub-themes will be examined more closely, starting with a graphic illustration in Figure 3.

### *Theme 1: The usage of ICT*

From the participants' responses, the various uses of ICT became evident in relation to the employees' work domain as well as their external context. These uses are presented in Table 1 below. Although Theme 1 seems obvious in a sense, it should not be overlooked, seeing that it helped the researcher to understand the influence exerted by ICT on the employees' WLI and how they use their ICT to manage their WLI.

**Figure 3**
Graphic illustration of the themes extracted

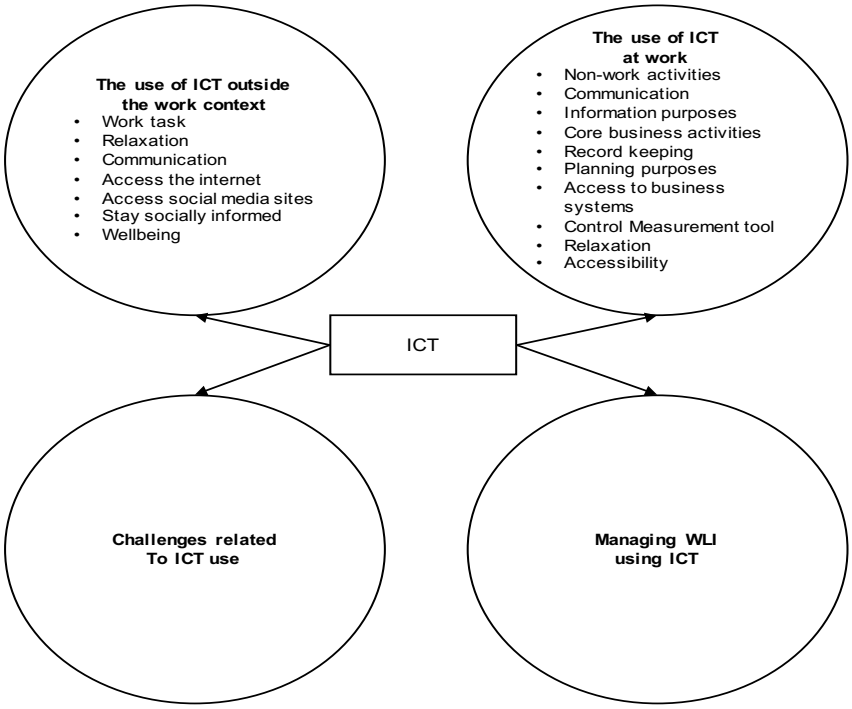



**Table 1**
The use of ICT in the work domain and outside the work context

| | |
|---|---|
| **Participants use ICT at work** | |
| ***For nonwork activities*** | Promote personal growth, for social communication, to access Internet banking and to access the Internet in general. |
| ***For communication purposes*** | Communicate with co-workers and clients. |
| ***For information purposes*** | Enabling them to share and obtain information. |
| ***To access business systems*** | Access business and management systems. |
| ***For record-keeping purposes*** | Create a written copy of communications and keep records of documents, contacts and emails. |
| ***To provide accessibility*** | Be accessible to their employer or clients. |
| ***As a control-measurement tool*** | Keep a record of conversations, control information and manage/control the work environment. |
| ***To complete core business tasks*** | Employ it for core business activities, such as programming and use of Microsoft Excel. |
| ***For planning purposes*** | Plan their day by using reminders on their ICT devices and synchronising their calendars across devices. |
| ***For relaxation purposes*** | Relax or take a break from work, for example, checking social media platforms or playing games on devices. |
| **Participants use their ICT outside their work context** | |
| ***For relaxation purposes*** | Take a break or relax by playing games, reading or watching movies. Access the Internet, either alone or with friends and family. |
| ***To do work-related tasks*** | Enable them to work and complete work-related tasks at home. |
| ***For communication*** | Communicate with friends and family and, in some cases, with co-workers. |
| ***To stay socially informed*** | Remain up to date with the latest news and trends. |
| ***To access the Internet*** | Access the Internet, particularly for online shopping sites. |
| ***To access social media sites*** | Access (post and read) information on social-media sites, such as Facebook, Twitter and YouTube. |
| ***For well-being*** | Track and motivate well-being. |

In line with the nature of this theme, it seemed obvious that there would be a similar use of ICT devices at work and outside the work context. Participants seem to use their ICT for *relaxation* and for *communication* in both their work and the external context. The participants mentioned diverse uses of ICT in both their work and non-work domains.

It is interesting, however, to note that the use of ICT at work, which the participants cited most often, was for *non-work-related activities*. Correspondingly, when the participants were asked about their use of ICT outside the work context, they often mentioned *work-related activities.* The participants indicated that they used their ICT devices at work to *access the Internet* for personal reasons (e.g. online banking, or social communication). The reason most frequently indicated was that it was more convenient to use their work ICT infrastructure than their personal ICT facilities for such activities. The participants said they sometimes used their ICT devices to *promote their personal growth,* as is evident from the following response:

> *The laptop that I use is solely at this stage for work purposes. Although I must say I am busy building up a database of information as I near retirement. You must plan your road ahead for there are few persons that can genuinely retire in comfort, so I am gathering information – valuable information, that I think is of value – that I can use in future without committing plagiarism (Participant 20).*

Further, the participants also use their ICT devices at work to *keep a record* not only of documents, but also of conversations with their colleagues. Some mentioned particularly that it allows them to fall back on written evidence of a conversation if required. This strategy corresponds with the use of ICT as *a control-measurement tool*. One participant mentioned that the ICT at work allows the employees to monitor their use of certain work tools over a period, thus allowing them to catch up on irregular use that could indicate either the misuse of tools, or a potential problem with the machinery:

> *It also give reports in that, if a job uses five of a certain type of tool one time, and then six months later it uses twenty five of the same tool, then it notifies the manager that there's some sort of an issue there (Participant 4).*

When the participants were asked about the purpose for and the manner in which they use their ICT, especially outside the work context, the second most common purpose they indicated was that of completing tasks or unfinished work, or improving the quality of their work. The following response makes this clear:

> *Well, if I haven't finished a report, I would have to take that home and then finish the report for the client (Participant 11).*

The participants also use their ICT to *track well-being* or to motivate them to exercise, which helps increase their well-being. One participant specifically mentioned that ICT allowed him to decrease his visits to a health practitioner as it has enabled him to track his wellbeing on his ICT. Another participant mentioned that his social-exercise application on his ICT device motivates him to exercise:

> *We have for example a WhatsApp running group, which is motivation for yourself. We are 12 people on it. When I lie at home at five in the afternoon and I see that three people have already ran three kilometres and I am sitting on my couch, then I jump up and go running as well. The WhatsApp group is also easy to plan with, we meet Saturday for a race. So I think in that regard it is very, very good (Participant 2).*

Theme 1 suggests that the participants use their ICT devices in both environments to assist them in various tasks. In most instances, these tasks are simple and entail common daily activities, such as *communication* and performing their *core business*. The significance of this theme lies in the interesting fact that the participants use their devices for cross-dimensional activities. For example, they use them at work for *non-work-related activities* like playing games or updating their social-media sites. On the other hand, at home they use the devices for *work-related tasks* or for *keeping in touch* with co-workers. This theme clearly illustrates how the use of ICT has become an integral

part of completing everyday tasks in both domains. Hence, people have become fully accustomed to using ICT for completing these simple tasks. It is therefore crucial to investigate the role played by these devices in employees' dual environments, as is argued above. Given the employees' use of ICT in their work and personal domains, the influence on WLI became more evident in the investigation of Theme 2.

### *Theme 2: Managing WLI by using ICT*

From the specific questions put to the participants on their WLI and the influence of ICT, Theme 2 was extracted, after which two sub-themes emerged. First, the way in which the participants viewed their WLI provides the contextual background to their experiences, and, second, the focus is on the way in which participants use their ICT to manage their WLI.

- **The participants' view of WLI**

When the participants were asked to elaborate on their current experience of WLI, the majority pointed out that they viewed the relationship between work and personal life more as a case of interference than of balance. The participants highlighted various contributing factors that led to interference in this relationship. These factors included ICT advancements, their household situation, their age, their profession or career stage and their workload. This also relates to the last theme (discussed under Theme 3), according to which the participants indicated that the use of ICT sometimes increased their workload.

Further, the majority of the participants indicated that when their workload increased, the interference between the two domains would also heighten. One participant mentioned, in particular, that the work would interfere more with their family activities if an important project required them to work extra hours to meet a deadline. The same participant also pointed out that, in her case, social pressure increased the interference. She explained that, as a mother, her primary role should be that of caregiver to her family, and not to introduce work into her family environment. She continued by stating that working after hours had a negative impact on her relationships with her family.

The participants also felt that their present career stage influenced such interferences. They explained that, during the early career stages, they had experienced less interference because their work demands were lower than the demands of the more senior managerial stage, in which demands were higher. It is significant that the majority of the participants indicated that the interference by work in their family environment (work-life conflict) was more prevalent than the reverse (life-work conflict). This sub-theme indicates that the participants experience interference in both their work and their personal life (i.e. WLI). The significance of the present research is that it highlights the way in which these participants use their ICT to manage WLI, as will be discussed.

- **Using ICT to manage WLI**

Flowing from their view of WLI, the responses indicated how participants used their ICT to manage their WLI. The majority of the participants indicated that they followed one of two approaches to managing their WLI: 1) limiting their use of ICT, and 2) using ICT to create flexibility.

*Limiting the use of ICT*

When following the first approach (i.e. limiting their use of ICT), the participants down-scaled either their access to ICT, or the access to their ICT devices. When limiting their access to ICT, the participants either consciously switch off their devices, or avoid using them for work in their personal environment, which the following response confirms:

> *Weekends I put my e-mails off, I put my phone off mostly on weekends. I really feel strongly about it, that you shut yourself off and that is why I do it over weekends and holidays. If for ten days I go to the game reserve I don't take my phone along, definitely not, otherwise it will drive me crazy (Participant 2).*

Alternatively, the participants said they would consciously decide not to enable their work emails on their mobile devices. This was to avoid distraction (as mentioned previously), although their devices helped them synchronise with their work email. This course of action is confirmed by the following response:

> *I previously received all my e-mails on my Blackberry. I can set my new phone up to also receive mails but I have purposely not done it, so I receive my e-mails on my iPad, but I don't always carry my iPad with me. But my Blackberry was always in my pocket and if an email comes through you take out the phone and look at it, even whilst having dinner, and this has an impact on your relatives and family that are with you (Participant 1).*

The participants indicated that these approaches limited their use of ICT, because they realised that major interferences occur between employees' work and their personal lives, and that individuals have to manage this interaction better. This relates especially to Theme 1, where the participants indicated that they used their devices for cross-dimensional activities, thereby reinforcing the blurring of the boundaries between work and their personal lives. It was interesting to note that some participants attributed the limited access to their devices to the fact that the company provided these devices as work tools. The participants claimed that, if the company provided and paid for the mobile devices, they felt obliged to enable the access. In concurrence, other participants felt that, if they paid for the mobile device in their personal capacity, they had no obligation to enable the access to emails from work.

*Using ICT for flexibility*

When it came to the second approach (i.e. using ICT to create flexibility) the participants maintained that ICT provided them with flexible working hours. Some argued that being able to choose their working hours (provided by their 'always connected devices') helped them manage their WLI. Other participants pointed out that well-managed WLI allowed them to structure their working environment around the needs of their family life. One participant specifically mentioned that having access to her work infrastructure without being at work physically enabled her to attend to her maternal duties, such as picking up her children from school in working hours and looking after them in the afternoon. She explained further that such a situation allowed her to complete her work after hours once she had fulfilled her duties as mother, which would not have been possible without ICT.

A significant finding was that the participants' perception of ICT's role in WLI changed only after they realised that they should make a conscious decision to manage their ICT. The majority of the participants indicated that, although ICT could easily interfere with their WLI, in most instances it helped them maintain a balance by forcing them consciously to manage their devices.

Throughout the investigation of the role of ICT in the employees' work domain, non-work domain and WLI, the participants identified multiple challenges while they were using their ICT devices, whether for work, personal matters or managing their WLI. These challenges were extracted as a final theme, to be discussed later.

### *Theme 3: Challenges of ICT usage*

The participants stated three aspects, which they found particularly challenging when considering the use of their ICT. Although this theme does not address a research objective directly, the data that were extracted added value to the overall understanding of ICT in an employee's environment.

**1) The frustration due to the unavailability of ICT**

Although this might seem obvious, the participants emphasised that people become highly dependent on ICT tasks. When ICT devices are not working (e.g. if they are offline or a battery is empty) it causes intense frustration and various problems. This can occur so intensely that it influences their productivity and their general well-being.

**2) The extent to which individuals and organisations embrace ICT**

The second challenge that employees face is that they are sometimes prevented from using their ICT, as the *environment in which they work has not yet adopted the use of ICT to the extent they require*. According to participants, if the environment in which individuals function (work or personal domain) is not adapting to the advances in technology. This increases the demands or pressure, as work has to be duplicated. One participant explained that certain regulatory bodies in South Africa do not, as yet, accept digital signatures, even though the capability is readily available and accepted by their organisation. This state of affairs sometimes requires employees to complete tasks twice: once on their devices (electronically) and a second time on hard copy. The following response demonstrates this:

> *So, now you are running double systems, there are certain things which we are required to keep a hard copy of, and on the flip side, things like procedures and so forth, you give it to people if it has not been signed by certain authorisation levels. So, now you have done everything in double (Participant 20).*

**3) Limitations in South Africa's ICT infrastructure**

The last major challenge mentioned by the participants was that they felt hampered in their use of their ICT devices to their full capacity. This is mainly owing to the high cost of Internet access in South Africa, particularly through mobile devices. The participants also explained that they would limit Internet access to some of their ICT devices (especially. synchronisation software such as DropBox or Cloud) to save costs. South Africa's telecommunication infrastructure has been limited since the introduction of ICT. Internet access is expensive in comparison with that in other countries.

Although only these three major challenges to the use of ICT were extracted, the analysis clearly indicated that, in most instances, the environment in which the participants operated/worked posed the greatest challenge. The participants said that, if they could use their ICT to its full capacity and not be limited by their environment, their work would be more effective and productive.

## 5 Discussion and conclusion

The general aim of the research was to investigate the function of ICT use in employees' work domain, non-work domain and their WLI. At the outset, three specific research objectives were set out. The results provided interesting findings and a better understanding of the role of ICT in general, as well as the employees' WLI. This includes the challenges employees face with their ICT use.

Theme 1 provided the contextual background for ICT and the various ways in which employees use it both at work and outside their work context. It therefore answers the research questions on the role of ICT adequately. True to the nature of ICT, it was expected that employees would use their devices mostly for communication purposes, for sharing information and for accessing the Internet. Afolabi and Abidoye (2011:114) define ICT as "the usage of electronic devices such as computers, telephones, internet and satellite systems to store, retrieve and disseminate information in the form of data, text image and others"). Besides confirming the expected uses of ICT, the participants indicated that they used their ICT especially at work to keep a record of conversations, to control their work environment and for non-work purposes as well as to enhance their well-being. These devices help the employees to monitor and track their well-being by means of health applications and their gyms' online health systems. Koskivaara, Laukkanen and Heinonen (2011) support this finding, indicating that certain ICT devices increase people's physical activities.

Theme 1 shows that employees use ICT to be accessible and stay informed, especially when it comes to their availability to their employer and clients. However, the participants also acknowledged that they experienced the full-scale accessibility provided by ICT in a negative way, as it creates the expectation that they should be 'always available'. This is supported by findings in

previous literature that ICT fosters an 'always on work environment' (Middleton, 2007:165). Such availability blurs the boundaries between the work and non-work domains (Porter & Kakabadse, 2006) and potentially increases work-life conflict (Boswell & Olson-Buchanan, 2007).

Interestingly, the most common use of ICT at work was found to be for non-work-related activities, and one of the main uses of ICT outside the work context was to complete work-related tasks. Using ICT at work for non-work-related activities (especially the Internet) is known as a form of cyber loafing. Liberman, Seidman, McKenna and Buffardi (2011) define cyber loafing as the personal use of the Internet by employees while at work. The employees' tendency to use ICT for non-work purposes while at work is in line with the findings by Wajcman, Bittman and Brown (2008). They indicate that employees use mobile phones at work to contact family and friends more than they do to contact their co-workers.

Given that participants use their ICT for multiple reasons at work and in their non-work environments, the participants elaborated on their WLI and the role of ICT in this interaction. These findings relate directly to the third objective of the research. They allow first for a better understanding of the employees' perceptions of their current WLI, and, secondly they highlight the impact of ICT on this interaction. The employees experienced their WLI in general as interference between their work and family environments. They further mentioned that they found that ICT intensified this interference rather than creating a balance.

The greatest significance of this research is that the employees began managing the role of ICT between both domains only after realising its impact and then they made a conscious decision to start managing it. In order to do so, they followed two different approaches, either separately or in combination. Previous research supports these two approaches (Gajendran & Harrison, 2007), but the combined use of these approaches has not been pointed out in any research thus far.

The first approach employees follow is to limit their use of ICT devices or the access on their device. The participants said that they would either limit the time they use their ICT devices (especially after working hours and on vacation), or else they would downscale the access to their devices (especially from business systems such as work emails). The second approach by employees is to use their ICT to give them flexible working hours and alternative locations for doing their work. The employees said that this would allow them to schedule their work assignments to accord with their family demands. Previous research refers to the second approach as telecommuting (Gajendran & Harrison, 2007). It means that employees can still live up to the expectations of functioning as partner or parent. By limiting their use of ICT devices, they would implement set times and days during which they would avoid using their ICT devices. These limitations would often be times they spent with their families, such as after work and at the weekends. Fleck, Robison and Cox (2014) found the same results, which were that individuals would create rules to limit and schedule the time and place for using their ICT devices.

Apart from creating rules about when and where to use their ICT devices, the employees would also limit the access to these devices to work systems. They would purposively avoid linking their work emails to their mobile phones in order to counter possible distractions and lower the possibility of interference. Allan and Lewis (2006) found evidence that employees limited their online access to devices to working hours as a strategy intended to maintain the boundary between their work and family life. Nevertheless, according to findings in the present research, employees did allow work emails on their larger devices, such as laptops and tablets. This could be because a mobile phone is seen as a necessity to be available at all times, which increases the possibility of interference. On the other hand, tablets and laptops, are also classified as portable devices, which are not always carried manually. This gives the individual the choice of using the device as required. Fleck et al. (2014) maintain that, although ICT gives employees the flexibility to balance their work with other aspects of their lives, they become their own agents and carry out boundary work to maintain their preferred balance.

During the data analysis, it became evident that the participants were experiencing various challenges with their ICT. Although this finding is not related directly to one of the research

objectives, it adds to the understanding of the overall role of ICT in the employees' environments. In the present research, it is assumed that employees use the Internet at work to counteract the high user cost in South Africa. This assumption is based on the feedback from the participants, saying that one of the challenges of ICT is the high cost of broadband in South Africa (Theme 3). This finding is supported by Udemans (2014), who points out that Africa's broadband costs are the highest in the world. Thus, to save costs the employees tend to complete personal Internet tasks, such as on-line banking, at work.

The participants said that a further challenge occurred in the periods when their ICT device was not working. Given their total dependence on ICT to complete work and tasks in general, when ICT is not functioning (e.g. it is offline or the battery has run down) this causes frustration. Some results showed that educators expressed their frustration with ICT when they had to contend with shortages of hardware, out-of-date software, technical problems or slow Internet speeds (Deryakulu, Buyukozturk, Karadeniz, & Olkun, 2008).

The participants pointed out a further challenge, which was the extent to which the employees' work environment adopted the use of ICT. The lack of or slow adoption of ICT in their work domains means that various tasks have to be done twice. The employees said that they would be required to complete tasks electronically but still provide a hard copy, mostly to comply with South African legislation. This was particularly relevant to employees working in the mining industry, where the Mine Health and Safety Act No. 29 of 1996 still requires certain hard copies of documents to be made available to the Director of Mine Surveying.

The benefit for organisations adopting ICT is evident in previous research, which found that the use and adoption of ICT increased both productivity and innovation (Doong & Ho, 2012; Ollo-López & Aramendía-Muneta, 2012; Preda, Crisan & Stanica, 2014). This trend was also highlighted in the present research, when the participants acknowledged an increase in their productivity and efficiency by using ICT. However, in order to benefit all their employees, it is recommended that, when organisations adopt ICT, they do so across the board in the organisation.

## Limitations

A clear limitation of the present research is that the majority of the participants were Afrikaans-speaking males. Thus, the sample cannot be viewed as representative of South Africa's multicultural society, which also promotes gender equality in the workplace. Furthermore, by conducting interviews the researcher had to rely on self-reported data as a source of information. Although self-report data is a research method commonly used in behavioural research, researchers should be aware of its limitations (i.e. social desirability, recall bias and mental editing).

Segrin and Flora (2004) explain that social desirability occurs when people purposively distort the truth to portray themselves in a positive light. Individuals are often known to remember only the good times in their lives or, in some instances, only the bad times, which makes it difficult to get a true reflection from the individual's past. The method of tape-recording the interviews holds the risk of inattention from the interviewer (Sim & Wright, 2000). This method also poses the danger of researchers disconnecting from the interviewees, who become self-conscious and anxious at the idea that their words are being preserved (Brynam, 2012). However, the researcher did not observe any noticeable anxiety on the part of any of the participants.

## Recommendations

The present research clearly shows that the use of ICT helped employees to manage their WLI. It is therefore recommended that organisations consider adopting ICT to assist their employees in their management of these two domains. This could be done in two ways.

First, organisations could implement a code of conduct or provide guidelines for eliminating the intrusive and excessive use of ICT, especially after working hours. This strategy is supported by previous literature, which found that, by imposing limits on contacting employees outside working

hours, it decreases the inappropriate use of ICT (Drew & Murtagh, 2005). A striking example is the vehicle manufacturing company Volkswagen, which decided to switch off their BlackBerry server to avoid emails being sent after working hours (BBC, 2011).

Secondly, organisations could pilot or implement flexible working hours and initiate possible telecommuting initiatives. Drew and Murtagh (2005) maintain that this could be accomplished by providing broadband work stations for the employees while ensuring that this intervention would not increase their working hours. Implementing flexible working hours and focusing on possible telecommuting could be beneficial to organisations and their staff. However, organisations should be aware that this strategy could increase managers' expectations of reaching their subordinates outside normal working hours. Employees may view such contact as infringing on their privacy, as it give managers power outside the work environment. Managers should remain realistic in their expectations of their employees. The downside of this approach is that organisations could face possible legal action based on workers' ICT addiction brought about by the increased expectations of constant employee availability (Kakabadse, Porter & Vance, 2007).

## Conclusion

In conclusion, it was found that the participants used their ICT for a number of reasons. Although this was helpful in their daily activities at work and at home (increasing their productivity and efficiency), such use is not without challenge and consequences. Sometimes using ICT can cause interference between the work and family domains. The research also showed that the more aware participants were of the role of ICT in their environments, the more they managed their devices in order to limit the negative experiences (both in using the device and in caring for their WLI). When it came to WLI, the participants were prompted to indicate ways of avoiding or limiting their use of ICT. The findings indicate that a clearer understanding of the role of ICT, by both employees and organisations, would allow them to manage their use of ICT better in order to enhance its positive role and limit the negative influence of these devices.

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