Exploring the role of information and communication technology on employees' work and family domains

JW de Wet

21183082

Mini-dissertation submitted in partial fulfillment of the requirements for the degree *Magister Commercii* in Industrial Psychology at the Potchefstroom Campus of the North-West University

Supervisor: Prof FE Koekemoer

May 2015

COMMENTS

The following remarks on the methodology are important beforehand:

- The editorial style as well as the references referred to in this mini-dissertation followed the format prescribed by the Publication Manual (6th ed.) of the American Psychological Association (APA). This practice is in line with the policy of the Programme in Industrial Psychology of the North-West University (Potchefstroom) that all scientific documents use the APA style as from January 1999.

- The mini-dissertation is submitted in the form of a research article. The editorial style specified by the South African Journal of Industrial Psychology (which largely agrees with the APA style) is used specifically in Chapter 2. Further APA guidelines were followed throughout the rest of this mini-dissertation.

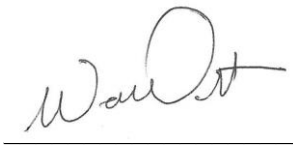
- Due to the richness of the data extracted in theme 2 (discussed in chapter 2), the discussion on this theme is quite extensive. For the purposes of this research the findings of theme 2 were discussed in-depth to ensure that the researcher captures the multi-faced nature of the data. On completion of the research the findings will be divided into shorter articles before submission for publication.

- The material described in this mini-dissertation is based on work supported by the National Research Foundation under the reference number, TTK20110823000025405.

DECLARATION

I, Johannes Willem de Wet, hereby declare that this mini-dissertation entitled "Exploring the role of information and communication technology on employees' work and family domains", is my own work and that the views and opinions expressed in this work are those of the authors as well as the relevant literature references as shown in the references.

I further declare that the content of this research will not be handed in for any other qualification at any other tertiary institution.



J. W. de Wet

ACKNOWLEDGEMENTS

This research study is the combination of hard work and support by a great number of individuals who all played a role in the success of this venture. However, the researcher would like to single out a few to whom he owes special thanks:

- Our one and only God who gave me the strength.
- My wife, Liezl, for her unconditional love, support, motivation and loads of patience during the years of my study.
- My son, Lihan, who provided much needed motivation.
- My supervisor, Dr. Eileen Koekemoer, who never doubted me and provided support and guidance to help me make a success of this study.
- My friend Petrie van Zittert who provided me much needed support and the best sounding board a friend could ask for.
- My parents and family for always listening and supporting my 'crazy' ideas.
- All the participants to my research who allowed me the time to interview them.
- The best language editor (who doubled as unofficial co-supervisor), Rev. Claude Vosloo.
- The National Research Foundation for their financial backing.
- Danone Southern Africa and all my colleagues who supported me throughout and management who allowed me the time to complete this study.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY

Topic: Exploring the role of information and communication technology on employees' work and family domains

Keywords: Information and communication technology, ICT, work-life interference, ICT usage, mobile devices, work life balance, policies, negative, positive

Technology has become part of society's everyday functions, changing rapidly and providing widespread mobility. In South Africa alone, the amount of internet users grew from 8,5 million to 24,9 million in only three years (2011-2014). Currently 90% of these users access this facility from their mobile devices. This statistic illustrates the trend that South Africans are moving towards a continually connected lifestyle, a situation in which information and communication technology (ICT) seems to have become omnipresent. Due the rapid growth of ICT technology and its adoption into people's lives (both personally and professionally) the influence of such a phenomenon needed to be investigated to understand its impact on individuals and society. Thus, the objective of the present research was to explore the role ICT plays in employees' work and family domain.

The research followed a qualitative research approach and made use of snowball sampling. The sample of participants (N=25) were mostly employees from a professional organisation. Semi-structured interviews were conducted to collect data and the interviews were recorded, transcribed and processed through thematic analyses. The analyses revealed the following four main themes with sub-themes flowing from it: 1) the usage of ICT; 2) the role of ICT usage; 3) the challenges relating to ICT usage; and 4) managing work-life interaction by using ICT. Theme 2 lend itself to be sub-divided into four minor subthemes namely: 1) the positive role of ICT usage; 2) the negative role of ICT usage; 3) the role ICT plays in relationships; and 4) the increased expectations brought about by ICT usage.

The current research was not without certain limitations, which should be noted. The researcher only investigated the employees themselves and did not extend the unit of analysis to include the household of employees (esp. the partner or spouse). In addition, the majority

of the participants were Afrikaans-speaking males, which is not a true reflection of the multicultural society of South Africa promoting gender equality in the work place. Based on the findings of the present research, various recommendations could be made.

Future research could firstly enlarge the sample to be more representative of South Africa's multicultural and diverse society, and secondly, to include the partner or spouse of employees. Organisations should also consider the implementation of various policies on ICT usage. These directives could include the following: a policy to ensure across the board ICT implementation; an after-work hours policy to ensure as little as possible infringement on employees work-life interaction; and a hierarchical policy ensuring the correct communication channels are followed.

Lastly, future research could also do multiple comparative studies on the differences between the degree of ICT adoption, or the amount of ICT devices employees utilise and the impact this has on their work-life interaction. Such research can also investigate how the decrease in face-to-face communication impacts social interaction in both the work and nonwork domains and thereby affects employees' work-life interaction.

OPSOMMING

Onderwerp: Verkenning van die rol wat informasie en kommunikasie tegnologie speel binne werknemers se werk- en gesinsdomein

Sleutelwoorde: Informasie en kommunikasie tegnologie, IKT, werk-leef-inmenging, IKT-gebruik, werk-leef-balans, beleid, positief, negatief

Tegnologie het deel geword van die samelewing se daaglikse funksies, ondergaan snel verandering en verskaf mobiliteit oor 'n wye spektrum. Slegs in Suid-Afrika het die getal internetgebruikers binne slegs drie jaar (2011-2104) van 8,5 tot 24,9 miljoen gestyg. Tans het 90% gebruikers toegang tot hierdie fasiliteit vanaf hulle mobiele toestelle. Hierdie statistiek is 'n illustrasie van die Suid-Afrikaners se neiging om te beweeg na 'n leefstyl waar hulle konstant gekoppel is. Dit behels omstandighede waarin dit wil voorkom of informasie en kommunikasietegnologie (IKT) alomteenwoordig geraak het. Die vinnige groei in IKT-tegnologie en die inname deur mense se lewe (persoonlik en professioneel), maak dit nodig om die invloed van hierdie verskynsel te ondersoek om die impak daarvan op individue en die samelewing te peil. Gevolglik was die doel van die huidige navorsing om die rol te verken wat IKT in werknemers se werk- en gesinsdomein speel.

Die studie het 'n kwalitatiewe navorsinsgsbenadering gevolg en die sneeubaltipe-steekproef gebruik. Deelnemers aan die steekproef (N=25) het grootliks bestaan uit werknemers van 'n professionele onderneming. Die data is ingesamel deur semi-gestruktureerde onderhoude, met die onderhoude wat opgeneem, getranskribeer en deur tematiese analise verwerk is. Die analise het die volgende vier hooftemas uitgewys, met subtemas wat daaruit voortgevloei het: 1) die gebruik van IKT; 2) die rol wat IKT-gebruik speel; 3) die uitdagings wat IKT-gebruik stel; en 4) bestuur van werk-leef-interaksie deur IKT in te span. Tema 2 was heel geskik om in vier subtemas te verdeel, naamlik: 1) die positiewe rol van IKT-gebruik; 2) die negatiewe rol van IKT-gebruik; 3) die rol wat IKT in verhoudings speel; en 4) die verhoogde verwagtings wat IKT-gebruik oproep.

Die huidige navorsing was nie sonder bepaalde leemtes nie, waarvan kennis geneem moet word. Die navorser het slegs die werknemers as sodanig ondersoek. Die ondersoek is nie

uitgebrei na die werknemers se huishoudings nie (veral die lewensmaat of ega). Daarby was die meerderheid deelnemers Afrikaanssprekende mans, wat nie ŉ getroue weerspieëling is van Suid-Afrika se multikulturele samelewing waarin gendergelykheid in die werkplek aangemoedig word nie. Gebaseer op die huidige navorsing se bevindings, kon verskeie aanbevelings gemaak word.

Toekomstige navorsing kan eerstens die steekproef vergroot om meer verteenwoordigend van Suid-Afrika se multikulturele en diverse samelewing te wees en dit tweedens oorweeg om die lewensmaat of ega by die navorsing in te sluit. Organisasies moet ook oorweeg om verskeie beleide in te stel wat IKT-gebruik reël. Hierdie aanwysings kan die volgende beleidspunte behels: ŉ beleid om implementering deur die bank vir alle personeel te verseker; beleid vir na-ure om seker te maak dat so min moontlik inmenging in werknemers se werk-lewe-interaksie geskied; en ŉ hiërargiese beleid om seker te maak dat die regte kommunikasiekanale gevolg word.

Laastens kan toekomstige navorsing ook verskeie vergelykende studies onderneem wat die verskille bereken tussen grade van IKT-oorname binne die werkplek, of die hoeveelheid toestelle wat werknemers gebruik, om die impak vas te stel wat hierdie tegnologie op hulle werk-lewe-interaksie het. Sodanige navorsing kan ook ondersoek hoe die afname in een-tot-een-kommunikasie sosiale interaksie beïnvloed in beide werk- en nie-werk-domeine en só die werknemers se werk-leef-interaksie beïnvloed.

CHAPTER 1

INTRODUCTION

The aim of this mini-dissertation is to explore the role of information and communication technology (ICT) on employee's work and family domains. This chapter consists of the problem statement, research objectives, research method and an overview of the chapters.

1.1. PROBLEM STATEMENT

The world is changing at a rapid pace, becoming increasingly technologically advanced daily. Everyday items are becoming 'smart' (i.e. smartphones, smart cars and smart homes) with the ability to connect and provide information at the touch of a button, mostly to increase the quality of life for its users. In an attempt to stay abreast with these changes governments are investing billions to convert cities into smart hubs, connecting people to city-wide WiFi networks. These networks provide up-to-date information on government programs, traffic as well as local attractions and restaurants (Reis, 2014). Organisations are also adopting this trend by investing large capital in information and communication technology (ICT) in order to remain competitive, and also increase efficiency and cost-effectiveness (Tusubira & Mulira, 2004). ICT, according to Chesley and Johnson (2010), refers to "technological platforms (e.g. the internet) and devices (e.g. mobile phones, computers, personal digital assistants [PDA], e-readers) widely used by individuals to communicate with others as well as gather and process information" (p. 1).

Although researchers began studying this increase in the adoption of ICT by both governments and organisations and its influence on them, little research focused on ICT as defined by Chesley and Johnson (2010), a definition that include various platforms and devices. Existing research focuses particularly on the mobile phone and its influence on work-life interaction (Chesley, 2005; Perrons, 2003; Wajcman, Bittman, & Brown, 2008; Wajcman, Bittman, Johnstone, Brown, & Jones, 2008). The problem with focusing research on only a single ICT device is that it ignores the development of traditional devices or items that are becoming 'smart' (Papadakis & Collins, 2001). The Collins Dictionary defines a

smart device as electronic devices that are connected to other devices or networks through different protocols such as Bluetooth, NFC, Wi-Fi and 3G, that can operate to some extent interactively and autonomously. Existing research has, however, identified various influences of specific ICT devices on organisations, environments and individuals. Subsequently these influences will be examined closer.

Madden and Jones (2008) indicate that ICT influences individuals positively and negatively. Some of these positive effects include employees' improved ability to do their job and to share ideas with co-workers, as well as more flexible working hours. The negative effects include increasing work demands and hours, higher stress levels, and the difficulty to disconnect from work when at home (Madden & Jones, 2008). McQuillen (2003) also points out that by using technology to communicate, the characteristics of face-to-face communication dissolves. This can lead to a loss of loyalty and increased psychological distance between participants (McQuillen, 2003). Mobile phones also provide employers the opportunity to be connected to their employees at all times (Carroll, Howard, Vetere, Peck, & Murphy, 2002), which erases the separation line between work and family time. These results show that ICT may influence an individual's work domain and family domain, as well as the relationships within these domains.

Dos Santos (2014) found that 35.2% of the total ICT expenditure within South Africa is allocated to the financial, business and other services sector. These sectors are also expected to show a compound annual growth rate of 6,9% from 2008 to 2013, with a total expenditure of 28,4 billion by the end of 2013 (Dos Santos, 2014). In addition, Towers, Duxbury, Higgins and Thomas (2006) found that within their population group – clerical, technical, professional and managerial employees – professional workers (i.e. engineers, scientist, and analysts with managerial responsibilities) worked at least a total of 45,6 hours a week. Of this time 33 hours was spent working at the office, 6,4 hours at home and 6,2 hours outside the office and home by use of ICT (Towers et al., 2006). They further established that professional employees scored the highest for use of ICT devices, whereas 56,9% use a home computer with e-mail and 48,1% a laptop computer. These results indicate that professional employees use technology extensively for their work, either to become mobile or improve their efficacy.

Iwasaki, Takahashi and Nakata (2006) argue that further development of ICT increased competition, which in turn puts pressure on employees to work longer hours in order for their

organisation to remain competitive. Korunka and Hoonakker (2014) add that on job level, ICT increases work intensification, work-related health issues, burnout levels and depression. Keegan (2012) even argues that internet use affects a person's brain activity. According to him internet limits people's mental ability making them less able to concentrate, less reflective and demonstrate shallower thinking. All of these impediments could influence employees' productivity.

Although the negative effects are evident, Korunka and Hoonakker (2014) also mention that ICT brought some improvements to the world of work. They point out that, for some, the use of ICT indicate a decline in work load, decreased physical work and provide opportunities to learn new skills. Another well-known factor of adopting ICT within organisations is the 24-hour knowledge factory, which is defined by Gupta and Seshasai (2004) as follows:

> … a globally distributed work environment in which members of the global team work on a project around the clock; each member of the team works the normal workday hours that pertain to his or her time zone. At the end of such a work day, a fellow team member located in a different time zone continues the same task. (p. 1).

Cohn (2000) argues that technology not only improve productivity, but also creates opportunities for disabled persons to join the labour force – which was not possible in the past. Hill, Ferris and Märtinson (2003) also find that operating in an alternative work venue, brought about by ICT (e.g. virtual office or home office), has a positive effect on individuals' job motivation. The above mentioned scenarios indicate only a small degree of influence, both negative and positive, which the adoption of technology holds for organisations and their employees.

Not only does ICT influence the work life of employees, it also affects work relationships. The Work Foundation (2009) established that 69% of employees who have access to ICT devices use instant messaging to communicate with colleagues 'in-house' and are more willing to trust these colleagues with work tasks. This state of affairs indicates that the use of ICT within relationships may heighten trust between colleagues. Leek, Turnbull and Naudé (2003) mention that some participants believed that the use of ICT will make managing relationships more difficult and impersonal, decrease face-to-face communication and lead to more formal relationships. However, the majority of the participants disagreed with this belief, indicating that ICT does impact positively on employees' relationships at work.

As mentioned previously, ICT also influences an individual's family domain. The South African Advertising Research Foundation (SAARF, 2012a) found that between January to December 2011, of the South African adult population (15 years and older), 81,8% owned mobile phones of which 81,1% had a private subscription for their mobile phones. The SAARF also found that 12,5% of the population accessed the internet from their home either through a computer or a mobile phone and 56,3% used the internet for communication purposes (social networking, e-mail, instant messaging and chats) (SAARF, 2012b). Van Aardt and Shai (2010) indicate that within Gauteng High Schools, 98-99% of the learners own mobile phones. These results illustrate the extreme ICT adoption within families. Czerniewicz (2010), state that although these statistics are out-dated for technological advancements, this is the only available source. These statistics also exclude recent technological developments such as tablet's, netbooks and gaming consoles.

When considering the influence of ICT on the family domain, Papadakis and Collins (2001) mention that research is "extremely limited in scale and scope" (p. 8). This is supported by Chesley and Johnson (2010) who contends that this realm is still understudied. The little research that exist only cover aspects such as time displacement, teleworking of parents, psychological well-being, informatics and healthcare, and the influence of video games on children (Papadakis & Collins, 2001). Evidently there is a need for research on the influence various forms of ICT device usage can exert on individuals' work and family domains.

Mieczakowski, Goldhaber and Clarkson (2010), state that although it is difficult to generalise the exact influence of ICT on families, one can point out some significant results. Overall most of their participants felt that ICT interfered with family time, but also allowed them to communicate with family members who are geographically distant. Miller-Ott, Kelly and Duran (2012) argue that although mobile phones help relational partners stay connected, it creates the assumption that partners will always be available and accessible, which may decrease the quality of their relationship. Heussner (2010) mentions that although ICT provide the opportunity to create new relationships the brain is only capable of maintaining 150 of these. Therefore, the use of ICT 'max out' people's ability to maintain relationships. She adds that ICT enables people to research each other (through social media networks such as Facebook, mySpace and LinkedIN) before meeting them. In the end this approach could create unrealistic expectations, especially within romantic relationships.

Furthermore, Mieczakowski et al. (2010) indicate that not only romantic relationships are influenced by ICT. In some cases children would rather spend time on their ICT devices (especially mobile phones) than interacting with other family members. The most notable findings of Mieczakowski et al. (2010) is that most adults mentioned ICT interfered with their family domain by allowing work to interfere with their family time. This phenomenon is also known as work-life interaction (WLI). When referring to work-life interaction it includes this concept's well-known synonyms such as work-life balance, work-life interference and work-life conflict. Geurts et al. (2005) define work-life interaction as an interactive process in which a worker's functioning in one domain (negatively or positively influenced) affects the functioning within another domain.

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

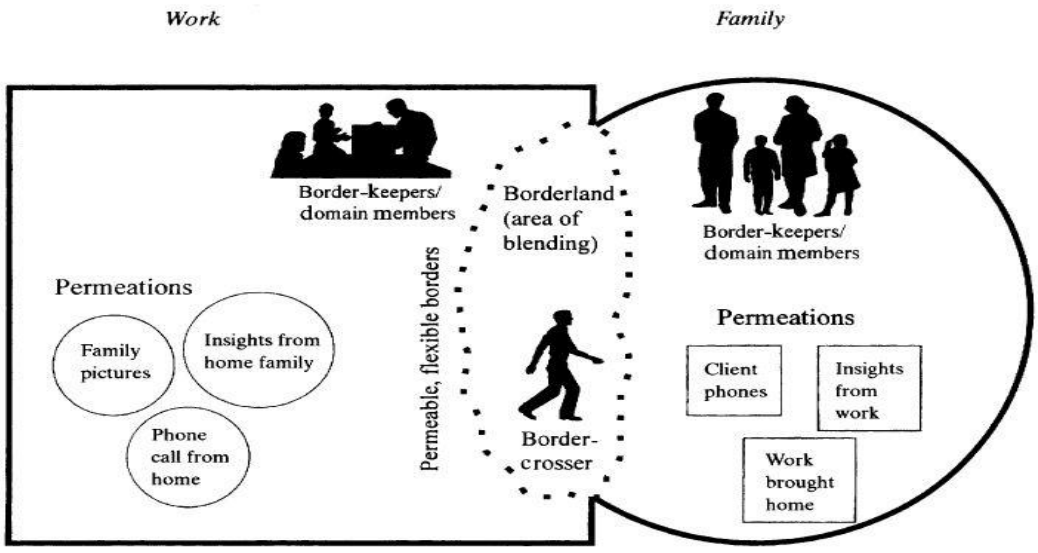


Figure 1: Work-Family border theory (Clark, 2000, p. 754).

According to Tenakoon (2007) ICT, providing seamless accessibility and availability of work tasks outside of work, blurred the borders between these two 'countries' (known as the borderland and creating border-crossers, according to Clark (2000)) and created spill-over (interaction) between work and family in both directions (work to family and family to work). Chesley (2005) indicates that persistent use of communication, brought about by ICT, is significantly linked to increased distress, decreased family satisfaction and negative WLI in both directions. In contrast, Wajcman et al. (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 the work domain is more prevalent than in the opposite direction.

Perrons (2003) points out that although ICT enables employees to take home paid work (meeting demands), in a negative sense it causes work to invade the family domain. What was once impossible (working from home) presently is possible and easily becomes what is expected of employees (Roberts, 2007). Roberts (2007) argues that the development in new ICT, which enables employees to take work home, pressurises them to work on weekends. In this way they show their commitment to the organisation, feeling it is expected of them. The present research further indicates that the border between work and family is gradually disappearing due to the rapid increase in ICT use within people's lives. The above mentioned developments illustrate that the findings of Papadakis and Collins (2001) is still relevant.

Researchers in many fields investigate people's ICT use, and the quality of information varies drastically. In spite of this fact, Papadakis and Collins (2001) point out that little integrated analysis exists and the overall influence of ICT is not yet clear. It is clear that researchers are beginning to show interest in ICT and the influence on employees' work life, family life and relationships. Nevertheless, such research is limited, especially within South Africa.

Keeping the above-mentioned research problem in mind, the following research questions will be investigated:

- How is ICT conceptualised according to literature?
- What role do ICT have on employees' work domain?
- What role do ICT have on employees' relationships at work?

- What role do ICT have on employees' family domain?
- What role do ICT have on employee's relationships in their family domain?
- What role do ICT have on employees' work-life interaction?
- What recommendations can be provided for future research and practise regarding ICT usage among professional employees?

1.2. RESEARCH OBJECTIVES

The research objectives consist of a broad general objective, which flows into specific objectives.

1.2.1. General objective

The general objective of this research is to explore the role of information and communication technologies on employees' work and family domains.

1.2.2. Specific objectives

The specific objectives of this research entail the following:

- To explore the conceptualisation of ICT according to literature.
- To explore the role of ICT on employees' work domain.
- To explore the role of ICT on employees' relationships at work.
- To explore the role of ICT on employees' family domain.
- To explore the role of ICT on employees' relationships in their family domain.
- To explore the role of ICT on employees' work-life interaction.
- To provide recommendations for future research and practise regarding ICT use among professional employees.

1.3. RESEARCH METHOD

The research method consists of a literature review and a qualitative, empirical study. The results are presented in the form of a research article.

1.3.1. Literature review

A complete overview of ICT and the role it plays in work, family and WLI is included in the literature review. The following online sources were consulted: Google Scholar, SAePublications, Emerald, Ebsco Host, Sabinet Online, ProQuest, JStor, Science Direct and the Harvard Business Review. In addition, journals relevant to the subject were consulted. Some of these journals include the *Journal of Marriage and Family, Human Relations, Journal of Vocational Behavior, Industrial Health, Communication Quarterly, Journal of Occupational and Organisational Psychology, South African Journal of Industrial Psychology, South African Journal of Human Resource Management, Journal of Engineering and Technology Management, Journal of Technology Education* and the *Journal of Commination.*

Keywords for the research are: information and communication technology, work-life interaction, technology, smartphones, tablets, relationships, border theory, work domain, family domain, mobile phones, work-life balance, work-life interaction and technology.

1.3.2. Research approach

A qualitative research approach is followed in the present research. According to Maxwell (2012) qualitative research intends to help a researcher:

> better understand (1) the meanings and perspectives of the people you study – seeing the world from their point of view, rather than simply from your own; (2) how these perspectives are shaped by, and shape, their physical, social, and cultural context; and (3) the specific processes that are involved in maintaining or altering these phenomena and relationships (p. viii).

1.3.3. Research strategy

The researcher made use of an exploratory case study to investigate the influence of ICT on employees work and family domains within the present research. Gerring (2004) defines a case study as "an intense study of a single unit for the purpose of understanding a larger class of (similar) units" (p. 342). He continues to elaborate that a unit refers to a spatially bounded phenomenon such as a nation state, revolution or a person observed at a single point in time.

Mills, Durepos and Wiebe (2010) further refine the definition of an exploratory case study as research that investigates a distinct phenomenon that is characterised by a lack of detailed preliminary research.

1.3.4. Research setting

Hays and Singh (2012) mention that it's important to conduct interviews in a natural setting where as little as possible distraction occur such as interruptions by other people and background noises. In line with these guidelines a private room, either at the participant's offices (booked in advance) or home, is utilised in conducting the interviews. The interviews are conducted on a convenient time arranged beforehand with the participants. The majority of the participants reside in Johannesburg as this is the most convenient vicinity for the researcher. Johannesburg is also seen as the business capital of South Africa. The locations in which the interviews are conducted are quiet and comfortable to ensure that the participants are at ease during the interview.

1.3.5. Entrée and establishing researcher roles

The researcher contacted each participant to establish a date and time for the interview. Considering the diverse use of ICT within professional organisations, no specific organisation is targeted, and thus no gatekeeper or mediator is required. No organisations are mentioned by name within the research and thus permission from the participants' employers are not required. The researcher provided each participant with a brief overview of the research and informed him or her that all information are kept confidential and only used for purposes of this research. Information of the research process are provided to each participant and an informed consent form was signed prior to the interview. The participant is given the opportunity to ask any question about uncertainties before the interview was scheduled.

Within the present research the researcher took on the role of planner, interviewer, coder and reporting of the data. As interviewer the researcher attended formal training to ensure the quality of data collected. For each interview the researcher applied the guidelines and avoided the pitfalls of interviewing as mentioned by De Vos, Delport, Fouché and Strydom (2011). During the coding process the researcher was assisted by a co-coder to ensure no valuable information was lost.

1.3.6. Research participants

Specific inclusion criteria are applied in selecting the participants. This is based on the degree of ICT use within their job and the expectations of being '*always connected*' and available to either their family or work. When using the term '*always connected*' the researcher refers to ICT devices that allow employees to be connect to the internet and their business systems at any given time. Snowball sampling is implemented to gain more participants up to the point of data saturation. According to Maree (2008) snowball sampling is a method where the researcher uses already contacted participants' social networks to engage other participants who may partake in the research. The following inclusion criteria were utilised:

- The participant must own and use at least two 'always-connected' ICT devices for both work and personal purposes.
- The participant must be willing to partake in the interview and agree to be tape-recorded.
- The participant must be employed in a professional organisation where ICT is part of their everyday working life.

1.3.7. Data collection method

The participants completed a biographical questionnaire and data is collected through semi-structured interviews. Hellin and Meijer (2006) define a semi-structured interview as "a guided conversation in which only the topics are predetermined and new questions or insights arise as a result of discussions and visual analysis" (p. 6). De Satgé and Holloway (2002) mention that although semi-structured interviews appear to be informal, the researcher should ensure that the conversation is well structured, guided by clear goals and interactive. The definition of ICT is explained to the participant beforehand and the information on devices used by each participant are adapted to fit the research question. The following questions are posed to the participants:

- *For what purposes or reason and how do you use your ICT devices at work?*
- *For what purposes and reasons and how do you use your ICT devices in your personal environment?*
- *How do you experience the role of your ICT devices on your work relationships?*

- *How do you experience the role of your ICT devices on your personal relationships?*
- *How do you currently experience your work-life interaction?*
- *What role do you experience your ICT devices play on your work-life interaction?*

The interviews are recorded and the participants informed prior to the interview. Each participant are assured that he or she may at any time, before, prior or after the interview, withdraw from the research. The safe keeping of the data will be discussed in the next sub-section of this research. The researcher made use of the following guidelines provided by McNamara (1999) for conducting semi-structured interviews:

- Choose a setting with minimal possible distractions.
- Explain the purpose of the interview to the participant.
- Inform the participant of confidentiality and address any possible terms regarding confidentiality.
- Explain the format of the interview to the participant.
- Indicate how long the interview may last.
- Provide the participant with the researcher's contact information if he or she may wish to contact the researcher at a later stage.
- Ask the participant whether he or she has any questions about the interview.

1.3.8. Recording of data

The researcher tape-recorded the interviews and the participants are informed prior to the interview of this method. The recordings are kept safely on an encrypted password-protected server to which only the researcher has access. The interviews are transcribed verbatim with the permission of the participant. The researcher took detailed notes of the interview directly after the interview was conducted for analysis at a later stage. To ensure confidentiality, the interviews are labelled according to the interview schedule and not the personal information of the participant. No copies of the recordings are made or distributed to any other parties. The identity of the participants are not disclosed throughout the process. In addition, the participant could withdraw his or her participation at any time throughout the research process.

1.3.9. Strategies employed to ensure data quality and integrity

The increased interest in qualitative research over the past years raised many concerns by readers and reviewers of the quality of data of such research (Kitto, Chesters, & Grbich, 2008). Thus the researcher made use of the following methods to ensure the quality of data of the current research as mentioned by Mays and Pope (2000): respondent validation, clear exposition of methods used for data collection and analysis, reflexivity, attention to negative cases and fair dealing. Creswell (2007) define respondent validation, also known as member checking, as the seeking of respondent's feedback on the findings of the research by the researcher. In line with the clear-exposition approach (Mays & Pope, 2000) the research clearly outlines the data collection and analysis process and procedures followed.

Kitto et al., (2008) explains that reflexivity is "where the researcher openly acknowledge and address the influence that the relationship among the researcher, the topic and the subjects may have on the results" (p. 245). Bu focussing on reflexivity the researcher avoided any possible bias of his own perception with regards to the phenomenon. Through discussion of any contradicting elements to the definition of ICT with the co-coder the researcher ensured attention to negative cases (Mays & Pope, 2000). Fair dealing is defined by Mays and Pope (2000) as "explicitly incorporates a wide range of different perspectives so that the viewpoint of one group is never presented as if it represents the sole truth about any situation" (p. 51). In line with the definition the researcher ensured that the participants are from different backgrounds and employed within different industries.

1.3.10. Data analysis

Thematic data analysis is utilised within this research to analyse the findings. Thematic analysis entails the process of identifying, analysing and reporting patterns from responses or data. These patterns allow the researcher to organise and describe the data in detail (Braun & Clarke, 2006). The following six phases are followed during the data analysis as provided by Braun and Clarke (2006):

- **Phase 1:** Become familiarised with the data through transcribing, reading and re-reading the data whilst making notes of initial ideas.

- **Phase 2:** Generate initial interesting features of the data in a systematic way across the data after which the researcher collates the ideas that are relevant to each other.
- **Phase 3:** Collate the initial ideas into potential themes by pairing the data relevant to each theme.
- **Phase 4:** Validate the application of themes in relation to the transcribed extracts and the entire data set, and thus, generating a thematic map of the data.
- **Phase 5:** Define and name the themes through a clear definition of each theme.
- **Phase 6:** Produce a report of the analysis in relation to the research question and literature.

1.3.11. Ethical considerations

The present research is conducted in an ethical manner. The research process is based on the ethical guidelines provided by Salkind (2008). The following guidelines are followed:

1. Every possible effort is made to minimise any risks to the participant.
2. The researcher take responsibility to ensure ethical conduct from all parties involved in the study.
3. A fair and reasonable agreement is reached between the researcher and the participants prior to the interviews.
4. The researcher informs the participants beforehand that they can withdraw from the study at any time. In the process the researcher respected a withdrawal of a participant and did not coerce that person to stay involved in the study.
5. Whenever possible, the participants at all times is shielded from any danger of physical and psychological harm.
6. After completion, the research is made available to all participating parties. These parties are given the opportunity to point out any identified discrepancies.
7. The researcher is responsible for any harm done to any participants, and undertook to correct such possible harm.
8. All the information about the participants of this study, and any related results, are confidential (p. 85).

1.4. Overview of chapters

The chapters in this research are presented as follows:

- Chapter 2 consists of the findings represented in the form of a research article.
- Chapter 3 comprises the conclusions and limitations of the research as well as recommendations for further studies on this topic.

1.5. Chapter summary

This chapter presented the problem statement, followed by the research objectives. Thereafter the research design was discussed and a brief overview provided of the chapters to follow.

REFERENCES

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. doi:10.1191/1478088706qp063oa

Carroll, J., Howard, S., Vetere, F., Peck, J., & Murphy, J. (2002). Just what do the youth of today want? Technology appropriation by young people. In *Proceedings of the 35th Annual Hawaii International Conference on System Sciences* (pp. 1777–1785). Washington, DC: IEEE Comput. Soc. doi:10.1109/HICSS.2002.994089

Chesley, N. (2005). Blurring Boundaries? Linking Technology Use, Spillover, Individual Distress, and Family Satisfaction. *Journal of Marriage and Family*, *67*(5), 1237–1248. doi:10.1111/j.1741-3737.2005.00213.x

Chesley, N., & Johnson, B. (2010). Information and communication technology, work, and family. In S. Seet & J. Chesley (Eds.), *Work and Family Encyclopaedia*. Chestnut Hill, MA: Sloan Work and Family Research Network.

Clark, S. C. (2000). Work/Family Border Theory: A New Theory of Work/Family Balance. *Human Relations*, *53*(6), 747–770. doi:10.1177/0018726700536001

Cohn, M. (2000). How does technology affect the workplace today? In *Biennial Careers Conference*. San Jose, CA.

Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches.* Thousans Oaks, CA: Sage.

Czerniewicz, L. (2010). *Mobile Is My Soul': More about cell phones in the South of Africa.* Retrieved from http://goo.gl/xyELR4

De Satgé, R., & Holloway, A. (2002). *Learning about livelihoods: insights from Southern Africa*. Cape Town: Periperi Publications.

De Vos, A., Delport, C., Fouché, C., & Strydom, H. (2011). *Research at grass roots: A primer for the social science and human professions.* Pretoria: Van Schaik.

Dos Santos, L. A. (2014). *Forward-looking technology players in the financial, business and other services sector.* Retrieved November 24, 2014, from http://goo.gl/laVJxZ

Gerring, J. (2004). What Is a Case Study and What Is It Good for? *American Political Science Review, 98*(2), 341–354. doi:10.1017/S0003055404001182

Geurts, S. A. E., Taris, T. W., Kompier, M. A. J., Dikkers, J. S. E., Van Hooff, M. L. M., & Kinnunen, U. M. (2005). Work-home interaction from a work psychological perspective:

Development and validation of a new questionnaire, the SWING. *Work & Stress*, *19*(4), 319–339. doi:10.1080/02678370500410208

Gupta, A., & Seshasai, S. (2004). *Toward the 24-hour knowledge factory* (No. 04). MIT Sloan Working Paper no. 4455-04. Retrieved from http://goo.gl/xt3kQz

Hays, G., & Singh, A. (2012). Qualitative inquiry in clinical and educational settings. *British Journal of Educational Technology*, *43*(3), 97–98. doi:10.1111/j.1467-8535.2012.01317_6.x

Hellin, J., & Meijer, M. (2006). *Guidelines for value chain analysis.* Retrieved from http://goo.gl/qNZZQt

Heussner, K. (2010, March 13). Is technology taking its toll on our relationships? *ABC News*. Retrieved from abcnews.go.com

Hill, E. J., Ferris, M., & Märtinson, V. (2003). Does it matter where you work? A comparison of how three work venues (traditional office, virtual office, and home office) influence aspects of work and personal/family life. *Journal of Vocational Behavior*, *63*(2), 220–241. doi:10.1016/S0001-8791(03)00042-3

Iwasaki, K., Takahashi, M., & Nakata, A. (2006). Health Problems due to Long Working Hours in Japan: Working Hours, Workers' Compensation (Karoshi), and Preventive Measures. *Industrial Health*, *44*(4), 537–540. doi:10.2486/indhealth.44.537

Keegan, S. (2012). Digital technologies are re-shaping our brains: What are the implications for society and the research industry? *Qualitative Market Research: An International Journal*, *15*(3), 328–346.

Kitto, S. C., Chesters, J., & Grbich, C. (2008). Quality in qualitative research. *The Medical Journal of Australia*, *188*(4), 243–246. doi:10.1177/107780049900500402

Korunka, C., & Hoonakker, P. (2014). *The Impact of ICT on Quality of Working Life*. Dordrecht: Springer Netherlands. doi:10.1007/978-94-017-8854-0

Leek, S., Turnbull, P. W., & Naudé, P. (2003). How is information technology affecting business relationships? Results from a UK survey. *Industrial Marketing Management*, *32*(2), 119–126. doi:10.1016/S0019-8501(02)00226-2

Madden, M., & Jones, S. (2008). *Networked Workers*. Washington, DC: PEW Internet and American Life Project.

Maree, K. (2008). *First steps in research*. Pretoria: Van Schaik.

Maxwell, J. A. (2012). *Qualitative Research Design: An Interactive Approach* (p. 218). Thousand Oaks, CA: SAGE Publications.

McNamara, C. (1999). *General guidelines for conducting interviews.* Retrieved September 12, 2014, from http://www.managementhelp.org/evaluatn/intrview.htm

McQuillen, J. (2003). The influence of technology on the initiation of interpersonal relationships. *Education*, *123*(3), 616–624.

Mieczakowski, A., Goldhaber, T., & Clarkson, J. (2010). *Culture, communication and change: Summary of an investigation of the use and impact of modern media and technology in our lives.* Cambridge: Engineering Design Centre.

Miller-Ott, A. E., Kelly, L., & Duran, R. L. (2012). The Effects of Cell Phone Usage Rules on Satisfaction in Romantic Relationships. *Communication Quarterly*, *60*(1), 17–34. doi:10.1080/01463373.2012.642263

Mills, A., Durepos, G., & Wiebe, E. (2010). *Encyclopedia of Case Study Research*. Thousans Oaks, CA: SAGE Publications. doi:http://dx.doi.org/10.4135/9781412957397

Papadakis, M., & Collins, E. (2001). *The Application and Implications of Information Technologies in the Home: Where Are the Data and What Do They Say?.* Arlington, VA: National Science Foundation.

Perrons, D. (2003). The New Economy and the Work-Life Balance: Conceptual Explorations and a Case Study of New Media. *Gender, Work & Organization*, *10*(1), 65–93. doi:10.1111/1468-0432.00004

Reis, M. (2014). *5 U.S.Cities Using Technology To Become Smart And Connected*. Retrieved November 15, 2014, from http://goo.gl/854BUP

Roberts, K. (2007). Work-life balance – the sources of the contemporary problem and the probable outcomes. *Employee Relations*, *29*(4), 334–351. doi:10.1108/01425450710759181

Salkind, N. J. (2008). *Exploring Research*. Harlow: Pearson.

Smart Device [Def. 1.]. (n.d.). In *Collins Dictionary*, Retrieved November 20, 2014, from http://goo.gl/FQUUfr

South African Advertising Research Foundation. (2012a). *Cell phone trends.* Retrieved from http://www.saarf.co.za/amps/cellphone.asp

South African Advertising Research Foundation. (2012b). *Internet trends.* Retrieved from http://www.saarf.co.za/amps/internet.asp

Tenakoon, U. S. (2007). Impact of the use of communication technologies on the work-life balance of executive employees. In *2007 Information Resources Management Association* (pp. 557–560). Hershey, PA: Information Research Management Association.

The work Foundation. (2009). *Changing Relationships at Work.* Retrieved November 24, 2014, from http://goo.gl/wDJ86

Towers, I., Duxbury, L., Higgins, C., & Thomas, J. (2006). Time thieves and space invaders: technology, work and the organization. *Journal of Organizational Change Management*, *19*(5), 593–618.

Tusubira, F., & Mulira, N. (2004, September). Integration of ICT in organizations: Challenges and best practice recommendations based on the experience of Makerere University and other organizations. Paper presented at *Universities: Taking a leading role in ICT enabled human development*, Kampala.

Van Aardt, I., & Shai, N. (2010). *Are the youth really totally replacing traditional media with new media?* Retrieved November 24, 2014, from http://goo.gl/TTEtvw

Wajcman, J., Bittman, M., & Brown, J. E. (2008). Families without Borders: Mobile Phones, Connectedness and Work-Home Divisions. *Sociology*, *42*(4), 635–652. doi:10.1177/0038038508091620

Wajcman, J., Bittman, M., Johnstone, L., Brown, J., & Jones, P. (2008). The Impact of the Mobile Phone on Work/Life Balance (Final Survey Report). Canberra, Australia.

CHAPTER 2

RESEARCH ARTICLE

Exploring the role of information and communication technology on employees' work and family domains

ABSTRACT

Orientation: Technology has become part of society's everyday functions, changing rapidly and providing widespread mobility to employees. Therefore it became relevant to explore the impact of these technologies in employees' work and family domains, especially on their work-life interaction.

Research Purpose: The general aim of the present research was to explore the role of information and communication technology (ICT) on employees' work and family domains.

Motivation for the study: The motivation behind the present research was to explore the impact of the rapid growth of ICT and the usage thereof on employees' work and family domains.

Research design, approach and method: A qualitative research design with snowball sampling of 25 participants was utilised within the present research. Participants consisted mostly of Afrikaans-speaking males working within a professional organisation within Johannesburg. The participants were required to use two or more ICT devices on a daily basis within their work and family domain. Semi-structured interviews were used for data gathering, which were later transcribed verbatim and analysed through thematic analysis.

Main Findings: The data yielded four themes which focussed on the usage of ICT, the role of ICT within employees' domains, the challenges related to ICT usage and the impact of ICT on their work-life interaction. Participants indicated they use their ICT for various tasks both within their work and family domain. It was evident from the data that the role of ICT were predominantly experienced as positive although some negative influences were also experienced. Participants also indicated a degree of dependency on ICT to complete everyday work and family tasks. The role of ICT on employees work-life interaction were mostly experienced as negative however participants mentioned two different approaches they utilised to assist them in managing their interaction between their work and family domain.

Practical implications: ICT played a significant role on employees' work and family domains and the research highlighted that further research is required to better understand this phenomenon.

Contribution/value add: The research highlighted that employees should make a conscious decision in managing their ICT to decrease the negative impact thereof on their domains and especially on their work-life interaction. Organisation should also be aware of the impact of

ICT on their employees and should strive to implement policies and procedures to assist their employees in managing the impact of ICT.

Keywords: Information and communication technology, ICT, work-life interaction, ICT usage, mobile devices, work life balance, policies, negative, positive

The world changed drastically in the past few decades – and still is – with a large majority of these changes due to the increased infiltration of technology in current society. This also alters the way individuals think, interact and complete their tasks (Maruis, 2012). Schmidt, Pfleging, Alt, Sahami and Fitzpatrick (2012) mentioned that abundant access to information and communication technology (ICT) did not only improve the world, but also transformed society drastically. According to Rincon, Vecchi and Venturini (2012), these advances in ICT brought about a technological revolution, which modified not only the manner in which individuals conduct business but also the way in which people complete daily household activities. Currently a 24/7 working culture exist, largely due the connectedness provided by ICT (Piazza, 2004). This seems to be somewhat in contrast to what Sir Winston Churchill predicted in 1947, when he visualised that due to technological advancement individuals will enjoy four-day working weeks.

Currently, technology is advancing rapidly. In 2014 the International Telecommunications Union (Delmas, 2014) reported a mobile cellular subscription rate of 6,95 billion. The number grew from 2,2 billion in 2005, thus, illustrating a growth rate of 212% in the past nine years. This also indicates that almost 96% of the global population currently owns or operates a mobile phone. The International Telecommunications Union (Delmas, 2014) further reported a fixed broadband growth rate of 105% between the years of 2007 to 2014 with an astonishing growth rate of 763% for mobile broadband devices during the same time period.

South Africa does not lack far behind in terms of these figures with a reported 70,4 million mobile subscriptions (GSMA, 2014). When considering the population of South Africa, this indicates that currently there is more than one mobile phone per person. The rate of internet infiltration in South Africa also drastically increased from a reported 8,5 million active internet users in 2011 (SAPA, 2012), to a reported 24,9 active users in 2014 (Internetlivestats, 2014), which indicates a 192% growth rate. To support this growth, the internet capacity of Africa had to increase from 3,4GB in 2009 to 25,18GB in the year ending 2012

(TechNimbus, 2011). From these statistics it's apparent that ICT usage is on the rise, both globally and nationally.

Not only is there a growing usage of ICT devices but the amount of devices available increased as well. Two other groups of devices providing access to the internet for communication and information purposes (tablets and gaming consoles), also show a rise in sales. In South Africa the sales of tablet PCs (such as the iPad and Galaxy Tab) increased by 46% since the beginning of 2013 (BusinessTech, 2013). Furthermore, the XBOX 360, only one of the big three gaming consoles available (i.e. the Xbox, PlayStation and Wii), sold 80 million devices since its launch from 2005 to 2013. The Sony PlayStation 4 also saw an upsurge of 40% compared to the previous sales of the PlayStation 3 for the same period (Vermeulen, 2014).

Given this increase in the use and availability of ICT, researchers began to investigate this phenomenon and the influence it exerts on individuals' environments (Alwahaishi & Snásel, 2013). However, available research is limited in scope, with the majority of researchers investigating only the influence of certain devices or platforms within specific domains (Lindquist, 2013; Shuter, 2012). This topic of research also interested organisations that realised the importance of ICT, thus some literature also examined the specific influence of ICT within organisations.

Tusubira and Mulira (2004) found that it became necessary for organisations to integrate ICT into organisational functions in order to increase efficiency, cost-effectiveness and competitiveness. This finding is supported by multiple researchers who also found that ICT increased organisational productivity in some way (Kamaruzzaman, Salled, Zawawi, & Ali, 2010; Kimathi, 2012; Mortagy, Boghikian-Whitby, & Mortagy, 2005). According to Lasrado and Bagchi (2011), hardly any business transaction currently occurs without it being captured digitally at some point. Even though ICT was present in the workplace almost two decades ago, presently it is viewed as a basic necessity and its absence in the workplace causes major dissatisfaction. Zorn, Hector and Gibson (2008) add that "work becomes more intense, workers are displaced, surveillance increases, workers' bargaining power is reduced and their skills (in many cases) become obsolete, devalued, or constrained by ICT-imposed structures" (p. 1).

Although Zorn et al. (2008) identify some of the more negative influences of ICT in the work environment, they also point out some positive aspects such as creating more interesting, highly skilled occupations, as well as complex and higher paying jobs. In addition, ICT assisted organisations to improve their products according to different customers' needs (through one-on-one interaction by use of ICT) (Kimathi, 2012). It is evident that the internet causes the world to grow closer, thus adding legitimacy and accuracy to the notion of a 'global village' (Mortagy et al., 2005)

Seeing that ICT helps to sustain the 'global village', organisations presently have a global reach and are able to compete in a fast-paced, and constantly changing world-wide business environment (Piazza, 2004). To remain competitive in such a business environment organisations must be productive 'around the clock'. This situation places additional pressure on employees. Essentially management requires from them never to go off duty, nor leave the office space. This situation provides managers power over their employees beyond the physical work environment (Piazza, 2004). Piazza (2004) adds that this condition essentially had the result that the business's ICT and the human employees began forming a unified system.

Chesley (2014) refers to the above-mentioned development as 'work extension' explaining that such extension occurs when ICT is incorporated into organisations' practices that enable employees to perform paid work in a nonwork environment. The latter is possible through the use of fully accessible ICT devices that are '*always connected*'. Employees use their ICT more frequently as a work extension within their nonwork environment. Therefore, ICT devices began to play a more prominent role within individuals' personal domain (Xobni, 2010). This raises the question about the influence of ICT on employees' nonwork environment.

Although Chesley and Johnson (2010) mention that research on the influence of ICT on families is limited, some research does exist. The most notable is the research of (Lindsay, Smith, & Bellaby, 2007) confirming that ICT provides family members a certain connectedness. According to them, apart from providing new ways to connect with family members and strengthening their family ties, ICT also help individuals to complete routine family-orientated tasks with more ease. It also enables couples to pursue interests in new ways (such as checking sport results, saving photos and making health queries).

However, Casey (2012) mentions that although ICT helps busy families to stay connected, it can also keep families apart. According to Casey (2012), in some cases, even though family members are together physically they are not paying full attention to each other as they are partially attentive to a 'ping or a beep' on their ICT devices, which may indicate a new message or email. Entz (2009) also found that families that utilise technology are less likely to share meals as they spend more time on their devices.

Apart from the possible influences of ICT within employees' personal as well as work environments, the continuous connectedness and availability of employees may create spillover between the work and family environment. Chesley (2005) found that persistent use of communication, brought about by ICT, can be linked significantly to increased distress, decreased family satisfaction and negative work-life interaction (WLI), or conflict in both directions. Kakabadse, Porter and Vance (2007) argue that although some view ICT as assisting in flexible work practices, others perceive it to impinge on their personal lives. This could result in a loss of discretionary time, lack in work-life balance and even cause elevated stress levels.

Hoonakker (2014) mentions that although ICT made it increasingly easier to work in other areas than the workplace, it caused the borders between work and family life to disappear. This fact is supported by Xobni (2010) who found that 72% of Americans and 68% of British citizens check their emails on nonworking days as well (such as vacation or weekends). Selwyn (2004) also found a continuing influence of organisations that enrol employees into the information age for a life-long commitment as they require employees to use and learn to use ICT. Demerouti, Derks, Brummelhuis and Bakker (2014) provide a fitting summary: Organisations embrace the new world of work brought about by ICT, whilst the negative and positive impact is still unclear. Therefore, more research is needed on the impact of the new world of work on society. Demerouti et al. (2014) define the new world of work as the flexibility provided in the timing of work, the place of work and the various options of communications with co-workers, supervisors and clients through new media technologies (e.g. smartphones and videoconferencing).

From the information mentioned above it is evident that various ICT devices and platforms have influenced society and their WLI, both in positive and negative ways. However,

people's understanding of ICT and its influence in a broader sense is not documented that well. Schmidt et al. (2012) points out: How individuals deal with ICT in the 21st century remains a challenging issue especially nowadays when employees no longer have a single computer focus, but have to contend with multiple ICT devices (e.g. mobile phones, tablet computers, netbooks, smartphones, laptops and desktop computers).

ICT Literature

Although various definitions of ICT exist, Stahl, Heersmink, Goujon and Flick (2010) mention that applying the broad term of ICT allows one to focus on a range of views and technologies, which the respondents or participants to the research perceive to be in ICT's range. Stahl et al. (2010) go on by emphasising that to define ICT at least limits the scope of discussion and avoid other forms of technologies such as biotechnology, nanotechnology and cognitive technologies (also known as NBIC technologies). For the purpose of this research the definition provided by Afolabi and Abidoye (2011) seems to fit the desired context. Afolabi and Abidoye (2011) 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" (p. 114). This definition allows researchers to focus on ICT as a whole (i.e. all applications). Such a focus implies more than merely the influence of mobile phones, computers and certain ICT applications (such as social networking platforms or instant messaging applications), as is the case with most current research endeavours. This current state of research on ICT will be discussed below.

More recent research in the field of ICT seems to focus more on the influence or impact certain ICT devices – or the particular usage of such a device – have on a specific environment or concept. The main focus of this type of research is within the education environment and focus on the impact of ICT diffusion (Achimugu, Oluwagbemi, & Oluwaranti, 2010; Kumar & Prasad, 2014; Leask & Pachler, 2013; Shirazi, Ngwenyama, & Morawczynski, 2010; Tolani-Brown, 2010; Van der Knaap, 2014). Other research also focuses on fields such as the productivity (Kılıçaslan, Kayış, Sickles, & Üçdoğruk, 2013), innovation (Arvanitis & Loukis, 2014; Higon, 2011) and performance of organisations (Arvanitis & Loukis, 2014; Higon, 2011; Kılıçaslan et al., 2013; Ollo-López & Aramendía-Muneta, 2012; Preda, Crisan, & Stanica, 2014; Saltari, Wymer, & Federici, 2013).

Most research about the influence of ICT on environments focuses on industry or on organisational level (Hall, Lotti, & Mairesse, 2013; Higon, 2011; Livingstone, 2012; Ollo-López & Aramendía-Muneta, 2012), often ignoring the possible influence these devices could have on the individuals or employees concerned. Studies that do indeed investigate ICT's impact on individuals or employees are mostly internationally oriented and follow a quantitative research approach (Berkowsky, 2013; Fallahi, 2011; Koutamanis, Vossen, Peter, & Valkenburg, 2013; Salehan & Negahban, 2013; Zorn et al., 2008). Only a few studies employ mixed-method approaches in their research (Lasrado & Bagchi, 2011; Lindsay et al., 2007).

Regarding the South African context, limited research is available on the influence of ICT. Such research studies only focus on the influence of a certain ICT device. This influence may show in the following contexts: on the country at large (Aker & Mbiti, 2010; Chiumbu, 2012; Donner, Gitau, & Marsden, 2011; Haupt, 2012), on businesses (Anwar, Carmody, Surborg, & Corcoran, 2013; Carmody, 2011; Kalba, 2008), or within rural areas, especially with regard to education (Blignaut, Hinostroza, Els, & Brun, 2010; Dlodlo, 2009; Hennessy, 2010; Turpin, 2013). As mentioned by Papadakis and Collins (2001) and supported by Abareshi, Martin and Molla (2011), Shuter (2012), as well as While and Dewsbury (2011), research on ICT is limited in scope and scale. Very little research was done on the influence ICT in its broader meaning exerts on the environment as a whole (inside and outside the work context).

It became clear from the overview of the relevant literature that the most recent research only focuses on the influence of ICT on organisational or industry level. Moreover, the researchers who do investigate the impact of ICT on individuals or employees only focus on certain ICT devices or applications. Thus, to investigate the influence of ICT in its broader sense, on employees and their environments, the present research followed an exploratory, qualitative approach. The aim was to gain a better understanding of ICT's influence on the various environments in which employees find themselves.

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 seen as separate and that tension is between the domains, known as work-family conflict (Edwards & Rothbard, 2000). Work-family conflict

was first defined by Greenhaus and Beutell (1985) as "a form of inter-role conflict in which role pressures from the work and family domains are mutually incompatible" (p. 77). Allen, Herst, Bruck and Sutton (2000) in a meta-analysis, found the following consequences that work-life conflict holds for an individual: (1) work outcomes (job and career satisfaction, organisational commitment, intention to turnover, absenteeism and job performance); (2) non-work outcomes (life, marital and family satisfaction) and; (3) stress outcomes (psychological strain, physical symptoms of stress, depression, alcohol abuse, burnout, as well as work-related and family-related stress).

Recent research, however, does consider the possibility of the *interaction* between these two domains. Although most researchers mention the conflict that occurs, recent theories began investigating the possible benefits of the interaction between work and non-work, known as work-life enrichment (Halpern & Murphy, 2013). Greenhaus and Powell (2006) define work-life enrichment as "the extent to which experiences in one role improve the quality of life in the other role" (p. 73). Brough, Hassan and Driscoll (2014), in a study on the consequences of work-life enrichment, found positive relationships between work-life enrichment and physical and mental health, job performance, positive job attitude, job satisfaction, affective commitment, work engagement as well as family and marital satisfaction.

Eby, Casper, Lockwood, Bordeaux and Brinley (2005) further mention that the relationships between work and family are complex and should be viewed as multi-dimensional in nature. Geurts et al. (2005) add to this by examining the overall concept of work-home interference and defining it as an interactive process in which an employee's functioning in one domain affects 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) defines work-life balance as "satisfaction and good functioning at work and at home, with minimum of role conflict" (p. 751).

These definitions illustrates that the term work-life interaction could be seen as an umbrella term that includes the possible variations of the interaction between work and nonwork environments such as work-life balance or enrichment (positive) and work-life interference or conflict (negative).

Work-life interaction and ICT research

Demerouti et al. (2014) mention that the new ways of work brought about by ICT introduces three key characteristics to employees' functions. ICT provides employees firstly with flexible working hours; secondly, with flexibility regarding their place of work and finally various options for communication with co-workers, supervisors and clients. All of these characteristics may cause ICT to invade an employee's family domain. Tenakoon (2007) mentions in this regard that ICT blurred the boundaries between work and family by providing seamless accessibility and availability to employees to complete work tasks outside the workplace.

Recent research into the role of ICT on WLI mostly identifies ICT as causing 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 after-hours use of ICT devices relates positively to work-life conflict, as reported by both the employees and their significant others. Demerouti et al. (2014) add that ICT eliminates the boundaries between work and home and increases the stress levels of employees. Jensen (2013) also finds that the negative impact of ICT is an increased expectation that employees should be available 24/7.

Although most researchers identified ICT as contributing to work-life interference, Demerouti et al. (2014), as well as Gajendran and Harrison (2007), find that ICT (esp. telecommuting brought about by ICT), to a small degree, 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, thus minimising work-life interference. Moreover, they found that telecommuting saves employees time as it cuts down on commuting time. Gajendran and Harrison (2007) also find that telecommuting has a small favourable effect on autonomy, job satisfaction, performance and turnover intention.

In South Africa very little research was done on the role ICT plays in employees' work-life interaction. Research that does exist mentions that improving one's information technology competence could reduce the impact of determinants from the work domain (Villiers & Kotze, 2003). Hoffmann, Farrel and de Klerk (2004) add that employees participating in telecommuting made possible by ICT, found their work-life balance increasing considerably.

The possibility of such an increase, though limited, supports the notion that ICT (or some of its variations) may contribute to a balance between the domains of work and family life. Hubers, Schwanen and Dijst (2011) does, however, point out that the flexibility provided by ICT devices alone is not enough to manage the different and challenging work- and domestic-related tasks. Therefore, more research is needed on how ICT impacts work-life balance. Given this problem statement and literature overview, the overall objective of the present research was to investigate the influence of ICT, in its broader meaning, on employees' work domain, personal domain and WLI.

Following the research approach and method used in the present research will be discussed.

RESEARCH DESIGN

Research approach

The present research followed an exploratory qualitative research design investigating the role ICT plays in employees' work and family domains and is based on the paradigm of interpretivism. This is done by focussing on employees working within a professional organisation. Snape and Spencer (2003) define qualitative research as "a naturalistic, interpretative approach concerned with understanding the meanings which people attach to a phenomena (actions, decisions, beliefs, values etc.) within their social worlds" (p. 3). Interpretivism aims to place emphasis and value on the human interpretation of the social world and the significance of both the participants'' and the researchers' interpretation and understanding of the phenomenon (the influence of ICT) being studied (Ritchie, Lewis, Nicholls, & Ormston, 2013). Thus a qualitative interpretive design enabled the researcher to gain a better understanding of the role ICT plays in the work and nonwork environment, as experienced by the employees, seen from their point of view.

The role of ICT, as mentioned previously, is studied inadequately and prompted the researcher to investigate the phenomena in depth, which supports the notion of a qualitative research design (Snape & Spencer, 2003). Conducting in-depth interviews is a main method to collect data as a qualitative research (Snape & Spencer, 2003). By employing this method, the researcher was able to grasp the employees' point of view on the impact of ICT on their work and family domains.

Research Strategy

The present research was based on a case study and the unit of analysis included employees working within a professional organisation that use two or more ICT devices on a daily basis. Yin (2013) mentions that a case study would be the preferred method of research if the main research questions are "how" or "why", the researcher has little or no control over the behavioural events and if the focus of the research is a contemporary phenomenon. In line with this Yin (2013) defines a case study as research that focus on a contemporary phenomenon (the "case") and where data triangulation would be more valuable to address the distinctive technical conditions as compared to data points. In the present research the researcher aimed to answer both how and why employees use their ICT, both at work and outside of work, and the influence thereof on their different domains (work and family domain). This makes a case study the ideal strategy to follow within the present research.

Research method

Research setting

Based on the inclusion criteria and the exploratory nature of the research the researcher decided not to limit the research to one employer or organisation. As a result, the researcher used snowball sampling to obtain participants and thereby conducted interviews in various locations. Furthermore, as no single employer or organisation was approached for the research, no mediator or gatekeeper was required. Permission and informed consent was thus originally obtained from each participant. Interviews were conducted in a professional manner and at the convenience of the participants. The researcher made sure that the interviews were conducted in an environment where the participants felt comfortable and minimal or no disruptions could be expected. To help provide a comfortable setting the interviews were conducted in the participant's home language and the majority of the interviews took place at the participant's home or a private boardroom at his or her office.

Entrée and establishing researcher roles

The researcher took on the role of interviewer in his function of collecting the data. For this function the researcher attended formal training to ensure the quality of data collected. For each interview the researcher applied the guidelines and avoided the pitfalls of interviewing as mentioned by De Vos, Delport, Fouché and Strydom (2011). The main responsibility of

the researcher was to investigate the role of ICT on the participant's work and family domains by using communication techniques such as paraphrasing, clarification, reflection and probing. The researcher also applied the qualities of relativism and reflexivity to ensure that he integrates research and practice as far as possible. De Vos et al. (2011) explain that by applying these two qualities researchers should perceive the phenomenon from one or more frames of reference. This would enable them to formulate an integrated understanding of their own cognitive world, particularly their own influence or role in the interviewing process. This carefully constructed interviewing process helped the researcher to avoid bias particularly from his own perception of the phenomenon.

Research participants and sampling methods

This research selected a voluntary sample of 25 employees working within a professional organisation. This sample was used to collect data for a non-probability purposive research. Snowball sampling provided enough participants to reach data saturation. According to Maree (2008), snowball sampling is a method in which the researcher uses social networks of participants who are already contacted, in order to reach other participants who could partake in the research. The goal of qualitative-data research is to enrich the understanding of an experience and requires the purposive selection of participants. Therefore the researcher had to select people from which he could learn substantially about that experience (Polkinghorne, 2005). Polkinghorne (2005) add that selecting participants for qualitative data differs from random selection, seeing that participants should be chosen for their possible contribution to clarifying the phenomenon. In light of this selection the following inclusion criteria were applied: participants were required to 1) own and use more than two '*always connected'* ICT devices for both work and personal purposes; 2) be willing to partake in the research by means of an interview; and 3) be employed in a professional organisation where ICT is part of their everyday working life. Interviews were conducted until data saturation was reached. Data saturation refers to the point where more interviews do not provide new or additional information to the phenomena in question within the context (Yin, 2009). Some of the biographical characteristics of the 25 participants are listed in Table 1 below.

Table 1

Characteristics of the participants (*n* =25)

Item	Category	Frequency	Percentage
Gender	Female	9	36
	Male	16	64
Age	20 – 29 years	9	36
	30 – 49 years	7	28
	50 – 69 years	9	36
Language	Afrikaans	18	72
	English	7	28
Relationships Status	Married	19	76
	In a Relationship, Divorced, Widowed	6	24
Number of ICT Devices Used	Two	11	44
	Three	6	24
	Four or More	8	32
Industry	Education	4	16
	Finance	5	20
	Legal	4	16
	Medical	2	8
	Mining	2	8
	Other (Manufacturing, Telecoms, Psychology, Real estate)	8	32

The majority of the participants were males who represented 64% of the sample. The age of the participants ranged between the ages of 24 to 60 years, with the majority (36%) being between the age of 24 and 30 years old. Furthermore, 72% of the participants indicated their home language as Afrikaans. The majority of the participants (72%) were married with 63%

of these married participants indicating that they have children. The remaining participants (28%) indicated that they were either in a relationship, divorced or widowed. The industry within which the participants worked ranged from the finance to manufacturing sector. Five participants (20%) indicated that they work within the finance sector, whereas a further eight (16%) indicating the education and the legal industry. The remaining participants indicated employment within the medical (8%), mining (8%) and sector for other business services (32%). The majority of the participants (60%) indicated that they use three ICT devices and 32% of participants use four or more ICT devices on a daily basis.

Data collection methods

Data was collected through semi-structured interviews, which were conducted with employees working within a professional organisation. The semi-structured interviews allowed the researcher to focus on specific themes whilst staying true to the conversational style of interviewing (Raworth, Sweetman, Narayan, Rowlands, & Hopkins, 2012). Raworth et al. (2012) further add that semi-structured interviews is the best way to learn about the participants' attitudes and beliefs and the impact a topic has on their lives. May (1991) adds that such interviews provide the flexibility in scope and depth that is required in research such as the current one, to investigate the phenomena on hand.

Although flexibility in scope and depth is valuable to exploratory research, the use of an interview schedule forced the researcher to consider which topics need to be covered in the interview to answer the research question, and to identify possible difficulties beforehand (De Vos et al., 2011). In the present research the interview schedule refers to the predetermined questions posed in the interviews. The interview schedule was adapted and finalised after the initial three pilot interviews were conducted and the data processed along with the input of the co-researcher. Pilot interviews allowed the researcher to gather valuable information on the expected data from each question, as well as the opportunity to refine the questions (Hill et al., 2005).

The schedule guiding the interviews were based on six main questions with possible probing sub-questions as required. The following six standard questions were posed in every interview:

- *For what purposes or reason and how do you use your ICT devices at work?*

- *For what purposes and reasons and how do you use your ICT devices in your personal environment?*
- *How do you experience the role of your ICT devices on your work relationships?*
- *How do you experience the role of your ICT devices on your personal relationships?*
- *How do you currently view or experience your work-life interaction?*
- *What role do you experience your ICT devices play on your work-life interaction?*

Prior to the questions on work-life interaction the participants were informed about the meaning of the term work-life interaction.

Prior to the interviews the researcher contacted the participants to schedule an appointment at their convenience. The participants were informed beforehand that content of the interview will be kept confidential and will only be used for purposes of research. Moreover, before the interview commenced the participants were made aware of the research objective and was provided a brief background on the research to help them grasp the context. The participants were also informed of the process which the interview will follow and were given the opportunity to ask any questions. All participants were required to sign an informed consent form together with completing a biographical questionnaire (see Appendix A). Lastly the participants were informed that they had the right to withdraw from the interview or the research at any time. They were provided with the researcher's contact details in case of any further queries or contributions.

Data recording

With the consent of the participants the interviews were recorded by an electronic voice recorder and stored on a secured server to which only the researcher had access. The researcher also made use of field notes (completed after each interview) to capture the thoughts of the researcher during the interviews for further analysis at a later stage. Bogdan and Biklen (1998) define field notes as "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" (p. 107-108). De Vos et al. (2011) mention that field notes should be written immediately after the interview. This will help the researcher to recall and explore the process of the interview (De Vos et al., 2011). The researcher made it his primary responsibility that the participants were unharmed during the research process. He also made a point of keeping the information safe and confidential (Wagner, Kawulich, & Garner,

2012). To ensure confidentiality, the recordings, notes and completed forms were stored in a safe place. A list of the participants was created in which each participant was allocated a number. Throughout the research the corresponding number of a particular participant was used to store the relevant forms, recordings and data.

Lastly, interview recordings were transcribed by employing a transcription service. The service provider signed a confidentiality agreement and received the recordings that were labelled according to the participant number. The transcriber was briefed beforehand to ensure that valuable information should not be lost in the process, Maree (2008) points out information such as laughter, or words/interjections such as "well". The researcher controlled the quality of the data by proofing the completed transcriptions while listening to the original recording to ensure that the interview was transcribed verbatim.

Strategies employed to ensure data quality and integrity

Mays and Pope (2000) mention that although there is no easy solution to limit the likelihood of errors in qualitative research, there is methods to improve the validity of the data. The following approaches are mentioned by Mays and Pope (2000): triangulation, respondent validation, clear exposition of methods used for data collection and analysis, reflexivity, attention to negative cases and fair dealing. The nature of the current research allowed the researcher to use all these approaches, except for triangulation. The approach of respondent validity, also known as member checking, refers to the researcher validating or cross-checking his account of the data analysed with that of the participant who was interviewed to check the level of correspondence (Barbour, 2001). In line with this approach the researcher contacted a random sample of participants to verify the findings. It was found that the analysis were in line with that of the participants' experiences. The research furthermore clearly outlines the process and procedures followed as part of the data collection and analysis. This was done in line with the clear-exposition approach as outlined by Mays and Pope (2000), and mentioned above.

Reflexivity refers to the way in which the researcher and the data processing shaped the analysed data, ensuring that bias and prior assumptions do not influence the findings (Mays & Pope, 2000). By focusing on reflexivity and relativism, as mentioned previously, the researcher avoided any bias, particularly from his own perception of the phenomenon. Throughout the data analysis the researcher discussed and explored with the co-coder

possible contradicting elements to the explanation of ICT. This approach is known as attention to negative cases (Mays & Pope, 2000). Mays and Pope (2000) define fair dealing as the method that "explicitly incorporates a wide range of different perspectives so that the viewpoint of one group is never presented as if it represents the sole truth about any situation" (p. 51). In the present research the researcher ensured that the participants are from different backgrounds and employed within different industries to ensure "fair dealing".

In addition, the researcher provided credibility by adopting appropriate research methods and using random sampling and debriefing sessions with his superiors (Shenton, 2004). The researcher also followed further guidelines by Shenton (2004) to ensure transferability and dependability. This was done by providing a detailed description and an in-depth methodological description of the phenomenon in question. To ensure conformability the researcher was aware of his own beliefs and assumptions and recognised the shortcomings within the current research (Shenton, 2004). Lastly, the researcher also made use of a co-coder, as mentioned previously, to help establish the validity and consistency of the data.

Data analysis

The verbatim transcribed interviews along with the field notes were analysed through thematic analysis. 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). Braun and Clarke (2006) further mention that thematic analysis provides a flexible and useful research tool providing the researcher the potential to identify rich and detailed, yet complex data.

The researcher followed the six phases of thematic analysis as provided by Braun and Clarke (2006) in analysing the data. Braun and Clarke (2006) summarise the six phases as is expounded in Figure 2 below.

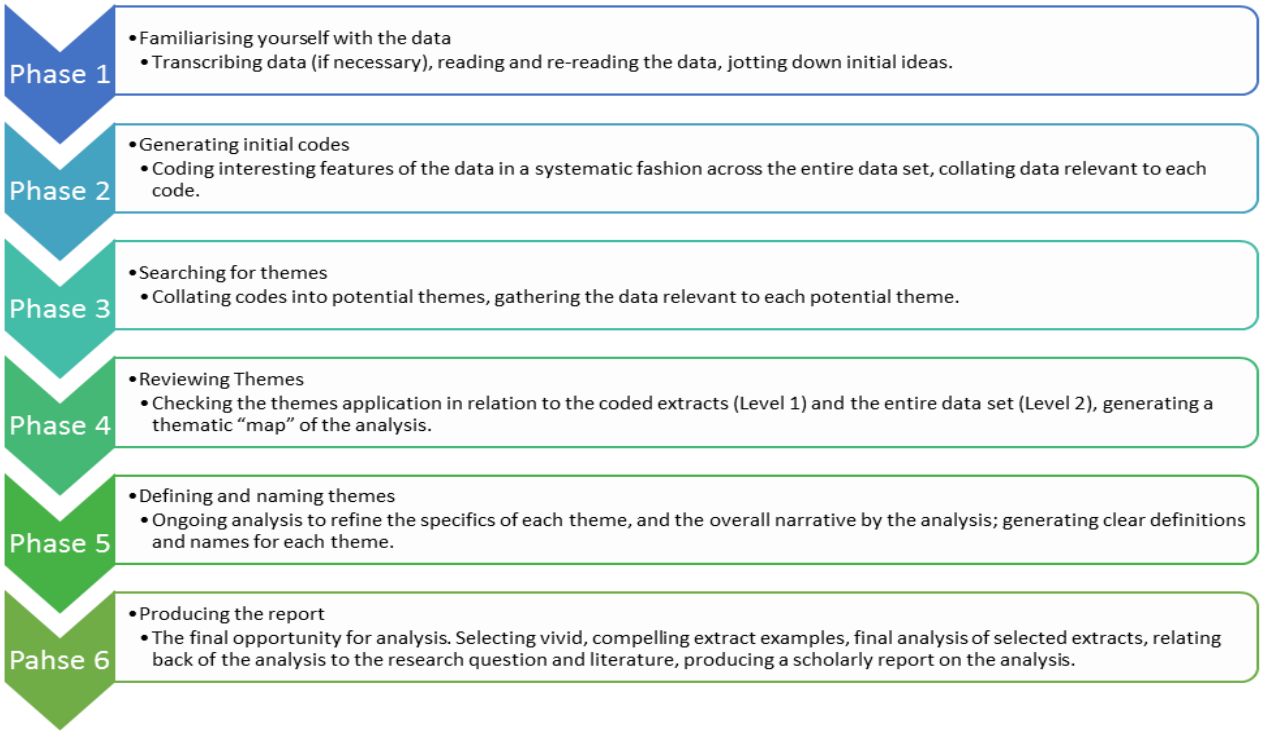


Figure 2

Summary of the six phases of thematic analysis (Braun and Clarke, 2006, p. 35)

Hereafter a summary on the thematic analysis followed in this research will be discussed. The researcher began the analysis by firstly reading through the transcribed interviews whilst listening to the recordings. This was done in order to validate the transcribed work, as well as to establish an overview of all the data. The researcher then re-read the transcribed interviews to ensure that he was fully familiar with the data (Maree, 2008) (Phase 1). Thereafter the researcher together with the co-coder began categorising the corresponding topics into clusters (Phase 2 and 3). As mentioned by Du Plessis and Human (2007), involvement of a co-coder during the data-analysis process enhanced the consistency of the results.

The researcher used the notes and categorised items from the first interview to guide the process whilst coding the second interview. This process continued throughout the coding of all 25 interviews, and is known as the constant comparative method (Wagner et al., 2012) (Phase 4). The researcher then extracted all the notes, including the original text for the notes and stored each topic into a separate file to use for analysis. This allowed the researcher a holistic view of a specific topic from all 25 interviews (Phase 5). The topics were refined further by the researcher whilst working through the combined notes on a specific topic. Along with the co-coder the researcher investigated each topic that was extracted along with

its original text, after which the topics were categorised into one of the four themes that was identified in the research (Phase 6). Based on the rich data received from the interviews, the themes were further subdivided into smaller sub-themes.

Reporting style

The four main themes extracted by the data analysis were reported through illustrative material such as figures and tables. Following the four themes will each be discussed in detail illustrated by the said figures and tables. This illustrative material was employed to ensure that the reader keeps track of the flow of the data as the researcher intended (Wagner et al., 2012). The data analysis yielded rich and informative information on the use and role of ICT on employee's work and family domains including the relationships within these domains and how employee's utilised ICT to assist with their work-life interaction. This allowed the researcher to reach his objectives as mentioned previously and will be discussed in more detail in the following section of this research.

RESULTS

As background to the findings and for a better understanding of the following findings it is important to point out a certain context to the meaning of ICT and its advancements as expressed by the participants. The analysis indicated that the participants are aware of the constant changes in ICT. They mentioned in particular the development of ICT, as well as new and improved forms of ICT for both their work and personal domains. The participants would often refer to the changes in ICT by comparing tasks they executed in the past without ICT, and tasks that they presently accomplish since the introduction of ICT into their domains. They emphasised that it changed the way they completed the same tasks at present. The following response sheds light on this situation:

> In the past you wrote letters to people with your hand and then the typist would type it. Then a messenger or someone came to pick it up and post or hand-deliver it (Participant 14).

Such a situation suggests that although the participants were aware of the advancements that ICT offers, the influence of ICT was not necessarily always that clear and simple to them. Related to this experience participants also mentioned that age or the issue of a generation gap could affect how they experience ICT's influence – as illustrated by the following response:

> Well, it depends. I think an older guy is going to say that it makes a huge difference, I mean we don't write in a book as previously, we now do it on a computer (Participant 19).

Given this context and background, the researcher extracted four main themes during the data analyses. The first theme centred on participants' usage of ICT (i.e. both within their work domain and outside the work context). The second theme focussed on the following sub-themes: the role ICT played within the participants' different domains, where they indicated a positive and negative experience of ICT, the role of ICT on relationships and finally the increase in expectations brought about by ICT usage. The third theme focused on the challenges that ICT usage hold, while the fourth and final theme examined the way in which participants managed their WLI by employing their ICT. Figure 3 below provides a graphic illustration of these four main themes and corresponding sub-themes.

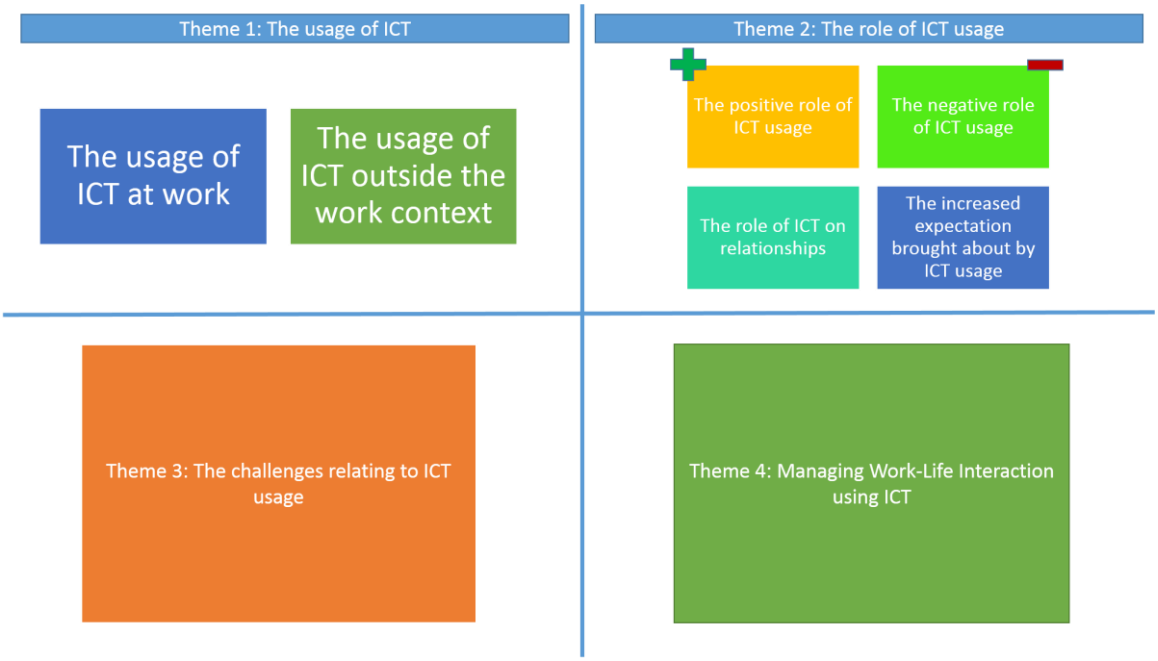


Figure 3

Graphic illustration of the four main themes

These four themes and sub-themes will be discussed in the following section.

Theme 1: The usage of ICT

The first theme that emerged from the data analysis was the various uses which participants found for ICT within their work domain, as well as outside their work context. Although Theme 1 seems obvious in a sense, it shouldn't be overlooked as it guided the researcher and

helped him understand the subsequent themes. Table 2 below summarises participants' diverse usages of ICT devices.

Table 2

The usage of ICT within the work domain and outside the work context

Participants use ICT at work		
Sub-theme	**Associated meaning**	**Responses**
For non-work activities	To promote personal growth, for social communication, to access internet banking and to access the internet in general	"My internet use includes everything – my use of search engines, for paying accounts and banking and to do business" (Participant #12) "To catch up with news and to deal with my own personal administration" (Participant #24)
For communication purposes	To communicate with co-workers and clients	"ICT makes it much easier because I can daily talk with co-workers over a teleconference" (Participant #21) "It makes things much easier and you always have that communication between you and your clients" (Participant #7)
For information purposes	To be able to share and obtain information	"I can share information with all my other psychologists at work" (Participant #11) "It makes it easier to get information and then distribute it" (Participant #14)
To access business-systems	To access business and management systems	"We use ICT for stock control, there is an inventory management component to our ICT systems" (Participant #14)" "So that everybody is on the same revision on the same version" (Participant #4)
For record keeping purposes	To create a written copy of communications and to keep record of documents, contacts and emails	"If you send an email, then you've actually got an electronic record, saying on this date at this time, you made certain requests" (Participant #4) "It is always good to have something on paper" (Participant #23)
To provide accessibility	To be accessible to their employer or clients	"You have to have technology, otherwise you are not going to reach your clients" (Participant #21) "Clients do not want to wait six weeks for a quote, he wants an answer immediately" (Participant #7)
As a control measurement tool	To keep record of conversations, to control information and to manage/control the work environment	"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) So, it gives us quite an powerful tool for controlling our products and the manufacturing of our products" (Participant #4)

Table 2 continued…

To complete core business tasks	For core business activities such as programming and use of Microsoft Excel	"My core role involves a lot of use in terms of the ICT equipment that I use. Without it, I probably wouldn't function" (Participant #16) "In a financial position, we use Excel for everything and everything is done on Excel spreadsheets" (Participant #15)
For planning purposes	To plan their day by using reminders on their ICT devices and synchronising their calendars across devices	"I actually make a note for myself to do something, or indirectly where something that is going to occur and comes to my attention through technology like email or whatever the case may be, and then forces me to do something at that time" (Participant #25)
For relaxation purposes	To relax or to take a break from work for example checking social media or playing games on devices	"If you take lunch or whatever, you do not actually take lunch physically, you keep on working all the time, but then I sit and check what is going on on YouTube and things like that" (Participant #7)
Participants use their ICT outside the work context for		
For relaxation purposes	To take a break or relax by playing games, reading or for watching movies. To access the internet, either on their own or with friends and family	"We use it to watch movies and stuff like that, so sometimes it is actually enabling in terms of we're going to snuggle now and watch a movie. So in that sense it enables us to do something together that we both enjoy" (Participant #4) "Yes, definitely, and you know what is nice about something like a PlayStation, especially with games like Fifa. It is still good in terms of you play with mates a lot of the time and you are not sitting at home by yourself in front of the computer screen with games such as World of Warcraft where you are dealing with someone but maybe someone in another country. With a PlayStation you are there, you are next to each other" (Participant #15)
To do work-related tasks	To be able to work and complete work tasks at home	"So a little bit of work with an odd document that must still get finished, email that must be responded to, that sort of thing" (Participant #17)
For communication	To communicate with friends and family and in some cases with co-workers	"My mom and I send regularly to each other, me and my dad as well, if we cannot phone, then it is a quick email" (Participant #10)
To stay socially informed	To stay up to date with the latest news and trends	"I use ICT for catching up what is going on in my life and in the world" (Participant #10)

Table 2 continued…

To access the Internet	To access the internet, specifically for online shopping sites	"I use it to shop and for information on restaurants, movies, places, or to get directions" (Participant #8) "I use ICT at home for the internet and e-mails, that is the main thing that I use it for" (Participant #18)
To access social media sites	To access (post and read) information on social-media sites such as Facebook, Twitter and YouTube	"I use it for social media, such as Twitter, Facebook and the blogs that I follow" (Participant #17) "Yes, when I take the computer it is usually for Facebook or for Pinterest" (Participant #10)
For wellbeing	To track and motivate wellbeing	"Virgin Active have a really nice thing where you can go onto their website and track exactly what workouts you've done, exactly what you've been eating and then it gives you feedback based on that, so I then track my body fat, my weight and my fitness levels and all that" (Participant #4)

In line with the nature of this theme, it seemed obvious that there would be similar usages 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 domain and outside their work context.

The participants further indicated that they use their ICT devices at work for *non-work-related activities, to obtain and share information, to use business-related systems, for record keeping, to be accessible, as a control measurement tool, for core business activities* and for *planning purposes*. With regard to the use of ICT outside the work context participants mentioned that besides using their ICT for *communication* and *relaxation,* they also employ their ICT devices for *work-related tasks, to stay socially informed, to access the Internet and social media* and for *wellbeing purposes*.

It is interesting, however, to note that the use of ICT at work which participants mentioned the most was *non-work-related activities*. In correlation, when the participants were asked about their usage of ICT outside the work context, they often mentioned *work-related activities.* The participants indicated that they use their ICT devices at work to *access the Internet* for personal reasons such as online banking and social communication. The reasons indicated the most was that the ICT infrastructure at work was more convenient to use for such activities, than their personal ICT infrastructure. Furthermore, the participants

mentioned that they sometimes use their ICT devices to *promote their personal growth* as in 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).

The analysis further indicated that participants use their ICT devices at work to *keep record* of not only documents, but also of conversations between themselves and colleagues. Some specifically mentioned that it allows them to fall back on written evidence of a conversation if required. Participants also mentioned the use of ICT as *a control-measurement tool*. One participant specifically mentioned that their ICT at work allows them to monitor the usage of certain work tools over a period, thus allowing them to catch up on irregular usage that could indicate either 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).

As mentioned previously, 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 to complete work tasks or unfinished work, or to improve 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).

Participants also use their ICT to *track wellbeing* or to motivate them to exercise, which help increase their wellbeing. 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. This avenue is important to him as his family has a history of heart disease. 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).

From the theme mentioned above it is evident that participants use their ICT devices in both environments to assist them with various tasks. In most instances these tasks are simple and entail common daily activities such as *communication* and to perform their *core business*. These findings indicate the interesting fact that participants use their devices for cross-dimensional activities. For example, participants would use their devices at work for *nonwork-related activities* such as playing games or updating their social-media sites. On the other hand, at home they would use their devices for *work-related tasks* or *to keep in touch* with co-workers. This theme clearly illustrates how the usage of ICT became an integral part of completing everyday tasks. Hence, individuals have become fully accustomed to ICT for completing these simple tasks. Therefore, it has become crucial to investigate the role these devices play in employees' dual environments as argued above.

Theme 2: The role of ICT

When considering the influence that ICT has in participants' lives, the overall role could be subdivided into four smaller sub-themes, namely the positive experience of ICT usage, the negative experience of ICT usage, the role of ICT on relationships and the increased expectation brought about by ICT usage. A graphic illustration of these smaller sub-themes can be seen in Figure 4 below.

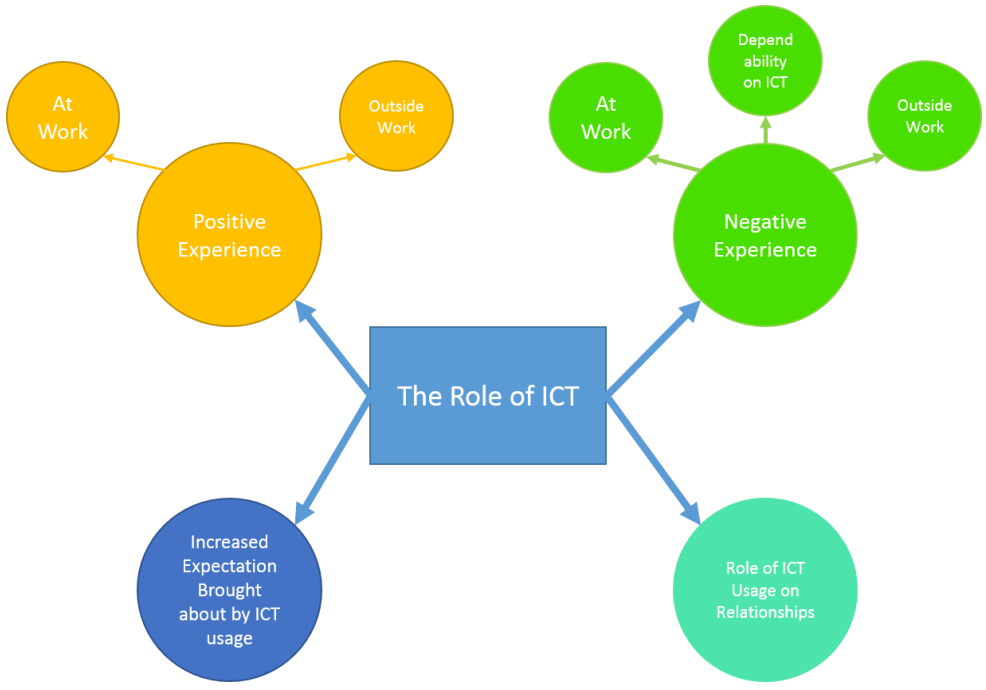


Figure 4

Graphic illustration of Theme 2: The role of ICT

For discussion purposes, employees' positive and negative experiences of ICT within the work environment and outside work contexts will be touched on separately. Table 3 below expounds the positive experience of ICT usage within participants' work environment, as well as in the context outside work.

Table 3

Experiencing the usage of ICT as positive

Participants experience ICT positive at work because		
Sub-theme	**Associated meaning**	**Quote**
Allows them to be more effective and productive	It allows a person to work faster, communicate easier and more rapidly, makes work easier and improves the quality of work	"I think that, without the communication systems that we have now such as e-mails, networks and management systems, it would be impossible to run a business such as this. You would not be able to handle the types of volumes we do. I know some companies volumes are one point two million repairs in a year alone. Yes, so, that means it is over a hundred thousand a month" (Participant #18)
Increases their availability	Allows a person to be available continuously to a client or employer	"I think it makes it easier at the moment because you can phone someone who is not at work and you can communicate and certain information can be passed on" (Participant #13)
Help them establish and maintain virtual offices	Allows a person to create a virtual office either to manage their physical offices (more than one), or to work away from the work environment	"I also have the two branches, I have the Lydenburg branch with one lady still there, so once a week I go to Lydenburg and work there. So, my one lady is still there. And that is a lot easier for us" (Participant #21) "So, my office is at home, where I do the office-bound part, which is a very small portion of my work" (Participant #8)
Provides easy access	Allows a person to have continuous access to work information, systems and documents even when not at work, which creates a mobile workforce	"Every device that I have, my cell phone, my laptop, my tablet, are all connected with my work emails. I am never away from my work basically" (Participant #7)
Saves time	Saves time by removing traveling time as ICT can be used instead to perform tasks quicker	"Well, I think technology can make it much easier as compared to the past where I had to write everything by hand and then find someone to type it and then to proofread it" (Participant #24) "It saves time and visits as well – things which can be done electronically, by means of talking over the phone and then I can send the stuff per email. They can then check it and send it back to me. It can be sorted out without me actually taking time to drive and making an appointment for a visitation. That certainly makes it easier" (Participant #23)

Table 3 continued…

Increases the competitive advantage of organisations	Gives organisations a competitive advantage by providing more options to communicate to and with customers and clients	"Our goal for the firm is that we must advance with technology as quickly as possible to provide the most efficient service to our clients" (Participant #7)
Facilitate obtaining and sharing of information	Allows a person to stay informed on work-related topics and information, and enabled to share and obtain information quickly and easily	"So, you find that with work-related things it is always easier with something like WhatsApp to share and organise things, you know, everyone is meeting here now … so that helps a lot … it is slightly easier than sending emails out, because you have to kind of pre-empt what you want to say, whereas WhatsApp may be more of a last-minute thing" (Participant #11) "I use it to find information, specifically related to my job as an engineer, so materials information, if we start having process problems, material specifications and stuff like that, it's a quick and easy reference" (Participant #4)
Supports globalisation	Allows people to interact and work across time zones and countries, making the world 'a smaller place'	"It makes the world smaller" (Participant #1)" "I wouldn't be able to do as many countries as I do. I wouldn't be able to move as fast as I do. I certainly couldn't do the job that I do, in the time allocated" (Participant #9)
Participants experience ICT positive outside the work context because		
Allows users to reach family members	Makes it possible to always get hold of family and friends (esp. in emergencies) and to keep in touch with friends and family who are close-by or distant.	"ICT is also very positive I would say, for example, if I want to get hold of Kobus I can get hold of him immediately" (Participant #18)
Provides access and synchronisation to and of information	Provides '*always connected*' access to all your files and documents through synchronisation software such as Dropbox	"If you need something urgently you are able to get that information pretty quickly" (Participant #9)
Increases personal efficiency	Makes it possible to be more flexible with your time, allows you to multi-task and makes a person more effective	"No, I could never achieve the results that I achieve without it or do the job that I do without it" (Participant #9) "Positive in the sense that it allows you flexibility so I can send a client things between 4 and 6 in the morning where historically you could not – you had to wait until the office opens and say to your client 'Here is your letter that I wrote by hand,' and then you could only talk to him" (Participant #8)
Facilitates obtaining and sharing of information	Makes it possible to easily and quickly share and obtain information	"To show that you are serious in making your business successful, your clients need to see that you can immediately respond to their request and provide them with the relevant information" (Participant #18)

Table 3 continued…

Provide cheaper alternative	Using ICT is less expensive than the alternative with regards to communication	"It was a huge adjustment. At a stage I did not have my Blackberry for a month and had to communicate with SMS and it was an adjustment for a whole month not just to quickly ask something, but to set up longer messages and sending them less frequently because it started costing money, which had a big impact" (Participant #6) "So, it saves us quite a bit of money from that point of view, is that we can access all of these engineering data-basis almost instantly" (Participant #4)

It was evident from the analysis that most participants experience the increase in their *productivity and efficiency* as positive. This does not only apply to their work but also outside their work context. Participants would often mention that their ICT devices allow them to work faster and to multi-task, but still maintain a high quality standard of work:

> I think our quality is higher and I think when you look at things like productivity, yes there are more outputs but there are also more people in this direction. As far as quality is concerned I do not have any doubts that it had a tremendous impact (Participant 6).

Participant's further mentioned that their use of ICT *increased their availability* to both their organisation and clients, and provided them with *easy access* to work documents and the system. One participant in particular mentioned that his organisation adapted their business systems to mobile devices such as iPad's and mobile phones. As a financial advisor who render financial services to various clients, these devices allowed him to work from his home office, and provide immediate advice and cost-estimations to his clients from the comfort of their homes or offices. This is mentioned in this response:

> My iPad was made compatible so that I can access quotations, here at your home for you (Participant 2).

Participants also indicated that ICT allowed them to *save time* by eliminating travel time to clients as it enables them to provide their services through ICT systems such as email and Skype. One participant mentioned that, although she is a consultant who primarily works away from her office, the use of applications such as Skype allowed her to provide her services to clients 'from anywhere at any time'. It is interesting to note that Participant 2, who mentioned that ICT allowed him to travel to his client's homes or offices to provide his

services, later remarked that he does experience decreasing face-to-face conversations as negative, although others would consider this simply as saving them time.

Much in the same way that ICT allowed participants to work from their client's offices and homes, these devices also support globalisation by allowing employees to work across geographical boundaries. One participant, a medical sales representative for Africa and Middle East, mentioned without his ICT he would not be able to cater for so many countries as his job required:

> I wouldn't be able to do as many countries as I do. I wouldn't be able to move as fast as I do. I certainly couldn't do the job that I do, in the time allotted" (Participant 9).

The two examples above can be seen as virtual offices, seeing that both the financial advisor and the consultant were able to work without being at their physical work station. Other participants added that ICT allowed them to *establish and maintain virtual offices,* especially between towns. A participant who acts as insurance broker mentioned that ICT allowed her to maintain and run two offices located in different towns. She pointed out that through emails and her mobile phone she is able to stay constantly in contact with her employees at both offices, as well as her clients from both towns.

Participants further indicated that, outside of the work context, ICT allowed them to *easily reach and stay in touch* with family members. One participant highlighted the fact that ICT allowed her to reach her husband easily, especially in emergency situations. Most of the participants also indicated that their ICT allows them to stay in contact with family members living abroad. This form of contact allows them still to be part of each other's lives through applications such as Skype and Whatsapp, which enable them to share photos and quick messages.

In light of the above experience some participants mentioned that the use of ICT is in some instances much *cheaper than the alternative*. It is evident that ICT empowered the participants to retain constant communication with friends and families, seeing that they can send a message or photo for a fraction of the cost, compared to a few years back. Although the participants' positive experiences almost outweighed the negative ones, some did still mention various negative experiences regarding the use of ICT. Apart from negative

experiences at work and outside the work context, the analysis also indicated that ICT usage created dependency on ICT. This condition will be examined in Table 4 below.

Table 4

Experiencing the usage of ICT as negative

Participants experience ICT usage at work as negative because		
Sub-theme	**Associated Meaning**	**Reponses**
Increases pressure	The usage of ICT in the workplace creates additional pressures regarding communication and effectiveness	"I have a client who will phone every half hour until I answer, which is not very pleasant. In earlier days they would phone you, leave a message, wait at least for a day until you could see them and accept it if you had other commitments and why you could not attend to them immediately" (Participant #8)
Can be used as an excuse	People use ICT as a convenient excuse to avoid direct communication	"I think particularly when you work with people, it is easier for them to use their computer and write a 'snotty' email rather than looking you in the eye" (Participant #24)
Compromises the chain of command	The usage of ICT at work removes the hierarchy of command regarding communication in the workplace	"So, let's say, the manager has a certain planning on what a person should do but in the meantime, he is getting so much tasks or requests from everyone else that he can't do it. In earlier days you asked the manager if that person could do it for you and he would put it in his planning for that day of what that person should do, which rarely happens these days" (Participant #14)
Participants experience ICT usage as negative outside the work context because		
Creates a distraction	The usage of ICT devices can create or become a distraction from work, or from the personal domain	"Same affects at work, because at work when I have personal stuff coming through, you think: Okay well it is just there and it is easy access, so let me just check it, and then before you know it, you have lost an hour" (Participant #11)
Makes people lose track of time	The usage of ICT lets a person in some cases lose track of time while using the device.	"It is bad because you just want to answer quickly, and then after five times of 'answering quickly' it takes an hour of your evening and it is difficult to manage because you want to be diligent in doing so" (Participant #8)
Compromises employees' confidentiality	The usage of ICT creates an electronic, non-erasable paper-trail and allows unwanted people to obtain access to personal or confidential information.	"The big negative is the fact that everybody knows what you are doing" (Participant #9)
Face-to-face communication decreases	By using ICT to communicate it decreases the face-to-face communication between people.	"The impact is massive – you don't have face-to-face conversations anymore" (Participant #2)

Table 4 continued…

ICT usage has a negative effect because		
Total dependence on ICT for work	People become dependent on their ICT devices to be able to work	"Without technology you can't work anymore" (Participant #15)
Addiction to ICT	People become addicted to their devices; they are afraid to go anywhere without their devices	"Yes, it might sound as if I am very dependent on my phone, but no, for me it is just with my mother, I think that the umbilical cord has never been cut. Where with my husband, he is more on his computer due to his work" (Participant #10)
Changes the norm for availability	With ICT becoming ever-present, the norm changes for a person to be accessible throughout (to work or family)	"You had to adapt your life to live accordingly to the changes in ICT" (Participant #14) "You use your phone when you quickly go out of the office, say for lunchtime or so, then you always have your emails with you" (Participant #3)
Creates a general dependency	People became dependant on their devices to stay informed in general, on social media and to manage their lives	"I think that we are at that point these days where you hardly go without your cell phone, not only for work. I think to a big degree it is more for social networks, people on Facebook and Twitter and BBM and those type of things, so it is very traumatic for a person to be without his phone" (Participant #14)"

It became clear from the data analyses that participants experienced the *increased pressure* due to ICT usage as negative within their work domain. Various participants explained this as follows: ICT allows them to be more efficient, productive and available, as mentioned in Theme 1, therefore, it also increases their work demands. The reason is clear: they are enabled to perform more work tasks in less time, thus being more productive. This factor will be discussed in more detail later in this research.

Participants mentioned further that they would often use their ICT at work as a *convenient excuse*. This means the use of ICT to avoid confrontational conversations. One participant in particular explained that it is much easier to write a negative or blaming email to someone, than actually speaking to him or her in person or "eye-to-eye". One participant did, however, experience the use of ICT in terms of an excuse as positive. The participant explained that when dealing with confrontational situations over email, using ICT allowed him to reconsider

what he wanted to say before he sent the mail. In comparison, with a face-to-face conversation, he might say something without considering the consequences.

Another negative experience the participants mentioned, is that ICT *compromised the chain of command or hierarchy at work*. Various participants explained that ICT made it easy to communicate with any of their co-workers when requesting assistance with a task, even though that person does not report to them directly. One participant mentioned that, from the perspective of a manager, such easier general communication makes it difficult to prioritise certain tasks for their subordinates, seeing that they constantly receive tasks from other managers or co-workers. This makes it difficult for managers to manage their subordinates' time and priorities, as can be deduced from the following response:

> So let's say, the manager has a certain planning on what a person should do but in the meantime he is getting so much tasks or requests from everyone else that he can't do it … (Participant 14).

Furthermore, participants stated that ICT usage *creates a distraction*. Although most participants indicated this as a negative experience outside the work context, some did mention that ICT also creates distraction at work. One participant specifically highlighted the distraction of his device linked to his work emails. When using the device in his personal environment for personal reasons, the notification of a work email distracts him and he ends up checking the email that came through on his device. This caused him to *lose track of time* and the ICT interfered with his WLI. Other participants also mentioned interference by their ICT, not necessarily because it distracts them but in general they would often find themselves spending more time as intended on their devices:

> It is bad because you just want to answer quickly and then after five times of 'answering quickly' it takes an hour of your evening and it is difficult to manage because you want to be diligent in doing so (Participant 8).

Participants also pointed out that the use of ICT devices to communicate led to *decreased face-to-face communication*, seeing that it is currently much easier and more convenient to communicate with someone using instant messaging applications such as SameTime and Skype, even if the discussants are in the same office building. Interestingly, one participant mentioned that he purposively avoids using instant messaging applications to communicate with people within his proximity. He rather actively tries to have face-to-face conversations with people, seeing that he experienced the loss of such direct communication as negative.

The same participant mentioned that he gets frustrated with people who use ICT devices in conversations. To him this seems rude and disrespectful.

The most interesting finding on dependability was that ICT *changed the norm of availability*. In the past, people were not expected to be reachable continually by both their family and their employer. However, the current expectation is that an individual should be reachable through his or her ICT devices. The following response illustrates this situation well with the participant expressing her concern when she has difficulty reaching her husband on his mobile phone:

> If you can't get hold of him you begin to panic, as a simple example, if I try to get hold of Kobus and his phone is off I start to panic because I think, why is he not there, then it ends up to be something simple like he is in a meeting and he had to turn his phone off (Participant 18).

In addition to employees' positive and negative experience of ICT as part of Theme 2, the role of ICT usage on relationships are also evident from the findings and are conveyed in Table 5 below.

Table 5

The role of ICT usage on relationships

Sub-themes	**Associated meaning**	**Responses**
Maintains personal relationships	Helps maintain relationships with family and friends both close-by and distant	"I have a very good friend in England, who's a colleague of mine. I most probably speak to him every second day on Skype and if I didn't have that technology I certainly wouldn't have the same kind of relationship or get the information that I need from him" (Participant #9)
Inhibits personal conversations and intimacy of conversations	Decreases the personal and intimate aspect in conversations and relationships by removing face-to-face communication and using ICT to communicate in simple terms	"Yes it is more impersonal but our generation is almost used to that. It does not bother us to communicate this way as you at least had your say" (Participant #3)
Usurps time in relationships	Creates distractions and takes time away from one's family either through working, or spending time on devices instead of with family and friends. In some cases this distraction can occur in the middle of a face-to-face conversation	"If it is your nature and you hear that phone beep and there is an email then you will take it out and read it. It does not matter where you are, even if you are in company" (Participant #1)

Table 5 continued…

Enables communication between co-workers	Allows a person to communicate easily and quickly with co-workers.	"Well, if anything, it enhances my communication with my colleagues, you know, my business counterparts, et cetera. Yes, absolutely. So it actually enables communication" (Participant #5)
Decreases the need for interaction	By using ICT for communication and on social networks, it decreases the need to communicate	"It is much easier, especially in a tearoom situation, as you can quickly walk to a colleague to hear about something and say to that colleague: 'Let's go drink some tea quickly,' or you walk into the tearoom and everyone is drinking tea, and you sit and drink tea with them. Thus, it does not make it necessary always to be social for work communication" (Participant #6)
Builds productive relationships	Allows for more productive relationships by saving time and making communication easy and quick	"Definitely, I think, in terms of my responsiveness, using these devices, the perception is that: 'You know what, she is always readily available to respond to any queries, issues, et cetera'. So, from that point of view, it certainly improves the relationship as far as colleagues are concerned, because it is more efficient or deemed to be more efficient in terms of utilising the devices available to share information that is required ASAP" (Participant #5)
Establishes new relationships	Enables a person to establish new relationships, even across geographical boundaries	"Indirectly you work with people in other countries who do the same as what you do; it gives one the opportunity to communicate with them" (Participant #17)
Enhances communication	Increases the frequency of individuals' communication with family, friends and co-workers	"Look, it is a huge, it plays a huge role in my life. I enjoy communicating with my mother and hearing from my father as to what is happening" (Participant #10)

Table 5 above expounds the effect of ICT on relationships. The analysis indicated that, much the same as with ICT's influence, the role of ICT on relationships can be experienced as both positive and negative. Most participants indicated that they experience the role of ICT on their relationships as positive, due to the following gains: *it allows them to establish and maintain relationships*, *enables communication*, *creates more productive relationships* and *increases their frequency of communication*. On the negative side, the analysis indicated that ICT usage *decreases the need for interaction*, *takes away time from relationships* and *inhibits the intimacy of conversations*.

The most mentioned role of ICT on relationships is the ability to *maintain personal relationships*, especially across geographical boundaries:

> I have a very good friend in England, who's a colleague of mine. I most probably speak to him every second day on Skype and if I didn't have that technology I certainly wouldn't have the same kind of relationship or get the information that I need from him (Participant 9).

Regarding the *decreased need for interaction* created by ICT usage, participants pointed out that social media reduced the need to interact with family and friends as they are able to get an update on someone's whereabouts through social-media sites such as Facebook and Twitter. One participant specifically mentioned that, when he attended his high school reunion, he found he had no topics to discuss with old friends. He already was aware of developments in their lives through the mentioned social-media sites.

A sub-theme identified from the analysis centred on the theme *decrease in personal conversations and the intimacy of conversations*. It is interesting that one participant did not view this decrease as negative. She explained that younger generations are used to communicate with ICT, which has almost become the norm. She continued by pointing out: with ICT one is able at least to have a conversation with someone, even though one has to make use of ICT devices, whereas without ICT such a conversation might not have taken place.

The analysis further revealed an interesting trend. Although ICT increased the frequency of communication and allowed for quicker and more direct (to-the-point) communication, the downside was that the need to interact and the intimacy of conversation decreased. Thus, it can be concluded that although the frequency of communication increased, the quality of conversations decreased.

The last aspect of ICT's overall role, which also forms part of Theme 2, is the increased expectations brought about by ICT usage. This aspect is covered in Table 6 below.

Table 6

New and additional expectations brought about by ICT usage

Sub-themes	Associated meaning	Responses
Increases the expected time of response	Creates the expectation that people will be available and will be able to respond immediately to an request	"Today it is immediate, if your client sends you an email it is there, no matter where in the world you may be. He wants an answer because he knows you have received it. It has increased the pace of life enormously – the working life" (Participant #1)
Creates the expectation for higher productivity	Creates the expectation that people will be more productive as ICT allows a person to be more efficient	"Do not tell me something happens with the push of a button. Because it doesn't, that is what technology does; you expect something to happen at the push of a button" (Participant #2)
Increases the expectation of continuous availability	Creates the expectation that a person will be available throughout to work as the ICT provides this opportunity	"It is also now expected of you to be always available. Like the saying 'I'm on leave but I'm online'" (Participant #14)

Table 6 above expounds the increased expectations caused by using ICT devices. Participants deemed it a positive side of ICT that it provides access and creates availability for interaction. Nevertheless a number of participants mentioned that this also *created an expectation,* as mentioned previously, that they must respond to communications immediately:

> Today it is immediate, if your clients sends you an e-mail it is there, no matter where in the world you may be. He wants an answer because he knows you have received it. It has increased the pace of life enormously – the working life (Participant 1).

The participants also alluded to the fact that advancements in technology also brought about an *expectation of higher productivity*. One participant specifically mentioned her frustration with others' perception that she should be able to do certain tasks "with the push of a button", which according to her is not reality. Lastly, the participants pointed out that ICT *created the expectation that a person should always be available* to their family, friends and employer. It was mentioned previously that ICT created the expectations of reaching family and friends more easily. However, some participants experienced the opposite: In the same way they expect family and friends to be reachable, they are also expected to be more reachable and available themselves to their family, friends and their employer. One participant mentioned a specific occurrence where a co-worker expected her to be available for work over a weekend, which created conflict within their relationship as well as with her family.

It becomes evident by the general trend of Theme 2: participants found that ICT played various roles within both their work environment and outside their work context. Their reactions to ICT in these roles ranged from positive experiences to increased expectations mentioned above. Although the participants indicated various positive experiences when using ICT, they also pointed out that along with their increase in ICT usage, both at work and outside of work, they encountered certain limitations and challenges. These impediments are discussed in more detail in Theme 3 to follow.

Theme 3: Challenges relating to ICT usage

When considering the use of ICT, participants mentioned three specific aspects, which they found particularly challenging. These aspects are summarised in Table 7 below. Although this theme is not covered as extensively as Theme 2, it was an important aspect participants emphasised throughout the interviews.

Table 7

Challenges relating to ICT usage

Sub-themes	**Associated meaning**	**Responses**
The frustration due to the unavailability of ICT	People get highly dependent on ICT for certain tasks, thus when ICT devices are not working (e.g. being offline or depleted battery) it causes huge frustrations and much problems	"It is definitely easier when technology is working. If it does not work, you don't understand it, you make a mess of it, then it is once again a huge frustration" (Participant #24)
The degree to which individuals and organisations embrace ICT	If the environment in which individuals function (work or personal) does not adapt to the advances in technology, it increases the demands or pressure. Sometimes work has to be duplicated. Some individuals do not adopt or use ICT, which causes frustrations and challenges for other individuals.	"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)
Limitations in South Africa's ICT infrastructure	South Africa's telecommunication infrastructure is limited since the introduction of ICT; specifically internet access is expensive compared to those in other countries.	"I think the only negative thing is, our country's data is too expensive" (Participant #2)

It is evident from Table 7 above: although the majority of the participants indicated their experience of ICT as positive, there are exceptions. When people's ICT is not working it *creates frustration* as they depend on their devices to complete certain tasks. Participants also

mentioned that they feel limited to use their ICT devices to its fullest capacity due to the expensive cost of internet access in South Africa, particularly mobile internet access. Participants also explained that they would limit internet access to some of their ICT devices (esp. synchronisation software such as DropBox) to save costs.

Participants mentioned further that they are sometimes impeded in the use of their ICT as the *environment within which they use their devices has not yet adopted the use of ICT to the degree they require*. One participant explained that certain regulatory bodies in South Africa does not yet accept digital signatures, even though the capability is readily available and accepted by their organisation. This state of affairs in some instances requires employees to complete tasks twice, once on their devices (electronically) and a second time as hard copy. This is necessary in order to comply with legislation or the requirements of their environment as becomes clear from this response:

> So, now you are running double systems, there are certain things which we are required to keep a hard copy of… So, now you have done everything in double (Participant 20).

Although the data revealed only three challenges of ICT usage, the analysis clearly indicated that in most instances the environment within which the participants operate was the biggest challenge. Participants mentioned that, if they could use their ICT to its fullest capability, and not be limited by their environment, their work would be more effective and productive. The fourth and final theme that emerged from the data analyses was the use of ICT devices to manage WLI. This theme is discussed in detail below.

Theme 4: Managing work-life interaction using ICT

From the analyses of Theme 4, two sub-themes emerged: the view of WLI (Sub-theme 1), and the way in which the participants used their ICT to manage their WLI (Sub-theme 2). It is important firstly to discuss the participants' view of WLI, in order to provide a contextual background to their experiences. In addition, focus will be on the way the participants use their ICT to manage their WLI.

Participants' view of work-life interaction

When the participants were asked to elaborate on their current experience of WLI the majority pointed out that they view the relationship between work and their normal life more as a case of interference than balance. The participants highlighted various contributing factors that influenced interference in this relationship. These factors, as mentioned by the participants, included ICT advancements, their household situation, an individual's age, their profession or career stage and their workload.

Furthermore, the majority of the participants indicated that when their workload increased, the interference between the two domains would also increase. They mentioned in particular that their work would interfere more with their family activities if an important project required of them to work extra hours in meeting the deadline. This is affirmed by the following response:

> So I might – depending on the pressure – will not, for a few days, if I am working on a project not even open spam mails (Participant 8).

The same participant also mentioned that social pressure increased interference in her case. She explained that as a mother her primary role should be as care giver to her family, and not to work within her family environment. She continued to explain that when working after hours it negatively influenced her relationships with her family.

Participants also felt that their career stage influenced such interferences. They explained that during early career stages, they experienced less interference because their work demands were lower as compared to that of a more senior managerial stage in which work demands will be higher. It is significant that the majority of participants would relate their work interference more to their family environment (work-life conflict) than from the other direction (life-work conflict).

Using ICT to manage work-life interaction

Finally, related to WLI mentioned above, the last aspect flowing from the responses was how participants use their ICT to manage their WLI. The majority of participants indicated that

they follow one of two approaches when managing their WLI. The first approach is to apply limits to their use of ICT, and the second approach entails using ICT to create flexibility.

Regarding the first approach (i.e. limiting their use of ICT), participants either limited their access to ICT, or limited the access of their ICT devices. When limiting their access to ICT, participants mentioned that they would either consciously switch off their devices, or avoid using them for work within their personal environment as 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).

When it came to limiting access on their devices, participants mentioned that they would consciously decide not to enable their work emails on their mobile devices. This was to avoid the distraction (as mentioned previously), although their devices helped them synchronise with their work email. This ambivalent attitude to ICT 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).

It was interesting to note that some participants related the limiting of access on their devices to whether the company provided these devices as work tools or not. Participants mentioned that if the company provided and paid for the mobile devices, they felt obliged to enable the access. In accordance, other participants felt that if they paid for the mobile device in their personal capacity they had no obligation to enable the access to work emails.

Regarding the second approach (i.e. using ICT to create flexibility) participants mentioned that ICT provides them with flexible working hours. Some argued that being able to choose their working hours (provided by their '*always connected*' devices), helped them manage the work-life interference. Other participants pointed out that well-managed WLI allowed them to structure their work 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 motherly duties such as picking up her children from school within working hours and looking after them in the afternoon. She explained further that such a situation allows her to complete her work after hours once she has fulfilled her motherly duties – something that would not have been possible without ICT.

A significant finding was that participants changed their perception of ICT's role on WLI only after they realised 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 to manage their devices consciously.

It is evident from the analysis above that ICT played a significant role in the environments of the participants. In most instances the participants experienced the role of ICT as positive, although there is still a downside to ICT usage. The analysis also showed that the more aware the participants were of their ICT in their environments the more they started to manage their devices, in order to try and limit the negative experiences (both by using the device and regarding their WLI). This occurrence of WLI prompted participants to indicate ways to avoid or limit their usage of ICT. The following section will focus on the discussion, limitations and recommendations of the current research.

DISCUSSION

Outline of the results

The impact of ICT on society became an important topic in research, particularly in developing countries such as Africa (Thompson & Walsham, 2008). This is due to the clear benefit ICT has on organisations' productivity and efficiency (Becchetti, Bedoya, & Paganetto, 2003). However, limited research exist on the influence ICT exerts on employees and their family domain (Chesley & Johnson, 2010). Thus, the general objective of the current research was to explore the role ICT play in employees' work and family domains.

To reach this objective the researcher firstly investigated the general usage of ICT by employees both within their work and outside their work context. Secondly, the role of ICT

on employees' relationships was investigated and lastly the influence of ICT on employees WLI. The themes extracted from the interviews provided valuable insights into the usage of ICT and the role these devices play in employees' relationships and their WLI. From the findings four themes were extracted. Although some of the findings are supported by previous research, the present research still contributed unique findings to literature on the role of ICT.

The first theme that was extracted focused on the various usages employees have for ICT. The second theme examined the role of ICT, which was sub-divided into four subthemes, namely the positive experience of ICT, the negative experience of ICT, the role of ICT in employees' relationships and the increased expectation brought about by ICT use. The third theme indicated challenges employees experienced regarding ICT use. The fourth and final theme highlighted the impact of ICT on employee's WLI and the various approaches employees took to manage their WLI by using ICT devices. These four themes will be discussed subsequently.

As mentioned above, Theme 1 highlighted the various ways employees use their ICT at work and outside the work context. True to the nature of ICT, it was expected that employees would use their devices mostly for communication purposes, sharing of information and accessing the internet. Afolabi and Abidoye (2011) 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" (p. 114). Employees mentioned that they would use their ICT both at work and outside the work context for the following functions: communicating with co-workers and family members, sharing and obtaining information, accessing the Internet (esp. for Internet banking and social networking sites) and as a method of relaxation.

Besides the expected usages of ICT, participants indicated that they particularly use their ICT at work to keep record of conversations, control their work environment and for nonwork purposes. Keeping record of conversations allows employees to recall details about a conversation when needed. ICT, especially for managers, also allowed them to control their work environment and to identify possible abuse or misuse of certain work tools. Participants also mentioned that they also use their ICT outside the work context for wellbeing purposes. These devices help employees to monitor and track their wellbeing through health

applications and their gyms' online health systems. Koskivaara, Laukkanen and Heinonen (2011) support this finding when they indicate that certain ICT devices increase the physical activities of individuals.

Interestingly the most common usage of ICT at work was found to be for nonwork-related activities, and one of the main uses of ICT outside the work context was to complete work tasks. Using ICT at work for nonwork-related activities (esp. the Internet) is known as a form of cyberloafing. Liberman, Seidman, McKenna and Buffardi (2011) define cyberloafing as the personal use of the Internet by employees while at work. In the present research the assumption is made that employees tend to use the internet at work due to the expensive cost of Internet usage in South Africa. This assumption is based on the feedback from employees that one of the challenges of ICT is the high cost of broadband in South Africa. This is supported by Udemans (2014) who points out that Africa's broadband costs are the highest in the world. Employees are not held liable for their Internet usage at work. Thus, to save costs they tend to complete personal Internet tasks, such as Internet banking, at work.

Employees using their ICT outside the work context to complete work tasks could also be a contributing factor to some of the negative experiences of ICT, particularly the increased pressure brought about by ICT use. One employee emphasised the fact that her use of ICT at home to complete work tasks increased when she had to adhere to strict deadlines. Connell and Philip (2007) support this finding by mentioning that 38% of their sample, that consisted of 5198 employees in the republic of Ireland living in private households, mentioned they never have enough time to get everything done in their job. Besides the increased pressure brought about by ICT usage, employees also mentioned various other negative and positive influences of ICT, which will be discussed next.

Theme 2 did not only highlight employees' negative and positive experiences of ICT usage, but also point out the role ICT plays in employees' relationships and the increased expectation brought about by adopting these devices. A unique finding in the current research was the overall general positive experience of ICT outweighing the negative experience. The most mentioned positive experience of ICT, both at work and outside the work context, was the increased productivity and efficiency which ICT devices provided employees. Cardona, Kretschmer and Strobel (2013) support this finding by mentioning that ICT significantly increases employees' productivity levels. Participants also mentioned that ICT increases their

availability to their employer, clients and their family members. This condition, however, results in employers and clients expecting employees to be more productive. Tarafdar, Tu, Ragu-Nathan and Ragu-Nathan (2007) support this finding by stating that "the use of ICTs comes with expectations for greater productivity" (p. 308).

ICT also enables employees to establish and maintain virtual offices, which participants experienced as positive. They mentioned that ICT gave them access to business systems and provided multiple options of communication outside their work domain. These usages of ICT could be contributing factors to establishing and maintaining virtual offices. This notion is supported by one employee who point out that because she is able to collaborate with her clients and co-workers through ICT she can maintain two offices in different geographical locations. The various options for communication with others also save employees time. Some participants explained that because they are able to communicate and share information with others through ICT, it eliminates traveling time. This fact is supported by literature that also indicate that the mobility ICT provides can reduce employees' traveling time (Demerouti et al., 2014).

Apart from saving time, ICT also saves costs for employees. This was particularly relevant for employees when using ICT outside their work domain. Participants mentioned that ICT provides cheaper alternatives to communicate through applications such as WhatsApp, which is less costly than a traditional text message. Seeing that ICT provides a cheaper option for communication it also allows employees to stay in touch with family members across geographical boundaries. Employees mentioned that they are able to communicate with distant family members, and still be part of their lives, through applications such as Skype. Ljung and Wahlforss (2006) mention that Skype does not limit individuals to telephone-like conversations, but enables interaction in a more face-to-face manner. This could be seen as a contributing factor to employees who still experience themselves as part of distant family members' lives.

A further unique finding of the present research is the negative experience of ICT compromising the chain of command in organisations. Employees, particularly those in managerial positions, mentioned that ICT makes it difficult for them to manage their subordinates and departments. They continued to explain that ICT allows employees within the organisation to allocate tasks more easily to their subordinates without their knowledge.

This makes it difficult for the managers to manage their departments and subordinates' time and priorities.

It was evident from theme 2 that employees easily become dependent on their ICT devices. In many instances this dependency is to such a degree that employees rely heavily on ICT devices to complete simple day-to-day activities and work assignments. Some employees indicated that they rarely leave their homes without their devices. This is particularly relevant for their mobile phones. The degree to which individuals become addicted to their phones is clearly illustrated by Walsh, White and Young (2008) who report that individuals in their study, that consisted of 32 individuals that use their mobile phone more than once per day, "were so attached to their phone that they felt the mobile phone was a part of them" (p. 22).

The third theme that was extracted also identified a unique trend in the role ICT plays within employees' relationships. It is evident that although ICT increases the frequency of communication it decreases the quality of conversations. When prompted on the increasing frequency of usage, employees mentioned that ICT makes it easy to establish, maintain and build more productive relationships. However, they indicated that ICT also inhibits the intimacy of their conversations and thus decreases the quality of the conversations. A further unique finding is about the use of ICT to build more productive relationships. Employees mentioned that ICT allows them to communicate easily and quickly with others, saving them time. They continued to point out that by communicating with ICT they are able to 'get to the point' in conversations and avoid the personal aspect of the conversation, creating more productive relationships.

Although ICT had various positive influences for employees, they also mentioned the experience of certain challenges regarding the use of ICT (Theme 3). The most common and almost most obvious issue lifted out as a challenge was the frustration when ICT is unavailable or out of order. Participants indicated that since they are dependent on their ICT devices to complete certain tasks, they experience frustration when these devices are not working. This condition is supported by Korunka and Hoonakker (2014) who also point out that one of the challenges ICT holds for employees within their job is the frustration caused by technical problems with these devices.

Theme 4 investigated the influence of ICT on employees' work-life interaction (WLI). It was evident from the findings that employees experience their WLI mostly as interference rather than balance. To manage this interference, employees make use of two different approaches. The first approach is to limit their use of ICT devices or the access on their device. Participants mentioned that they would either limit the times they use their ICT devices (esp. after working hours and on vacation), or limit the access on their devices (esp. from business systems such as work emails).

The second approach used by employees is utilising their ICT to provide them with flexible working hours and alternative locations for their work. Employees mentioned that this allows them to schedule their work assignments around their family demands. In this way they can still live up to the expectations as partner or parent. A unique feature of the findings in Theme 4 was employees making use of a combination of these two approaches to manage their WLI. Previous research supports these two approaches and refers to the second approach as telecommuting (Gajendran & Harrison, 2007). However, the combined use of these approaches is not mentioned in research thus far.

Limitations and recommendations

The present research is, however, not without certain limitations. The majority of the participants consisted of Afrikaans-speaking males, and thus the sample is not representative of South Africa's multicultural society, which also promotes gender equality in the work place. Furthermore, using interviews meant the researcher relied on self-reported data as 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) continue to explain that social desirability occurs when people purposively distort the truth to portray themselves in a positive light. Individuals are also known to often only remember the good times in their lives, or in some instances only the bad times, making it difficult to get a true reflection from the individuals past. This according to Segrin and Flora (2004) is known as recall bias. Mental editing refers to individuals trying to make sense of their past and in the process sometimes edits the detail of an event for them to make sense thereof (Segrin & Flora, 2004).

The method of tape-recording the interviews also poses the risk of interviewer inattentiveness (Sim & Wright, 2000). This also has the danger of disconnecting from respondents who become self-conscious and anxious at the idea of their words being preserved (Brynam, 2012). However, the researcher did not observe any noticeable anxiety from any of the participants. To conclude the discussion on chapter 2, a few suggestions are made on policies to manage ICT usage.

To assist employees and organisations in managing the effects of ICT it's highly recommended that organisations introduce three ICT-related policies based on the current research.

Firstly, organisations should introduce a policy ensuring that the adoption of ICT occurs across the board in the organisation and its staff. This could reduce the frustration employees experience when they are required to complete work tasks twice – once electronically and secondly still produce a hard copy – for a certain section of the organisation. Participants explained that they follow this procedure because not all the staff in the organisation has adopted the same degree of ICT usage yet.

Secondly, organisations could implement an ICT policy for after-work hours to ensure as little as possible infringement on employees' WLI.

Lastly, organisations should introduce a hierarchy policy for ICT use. This could ensure that the correct communication channels are followed when providing instructions and tasks to employees. It is recommended that organisations include the following directive in such a policy: When tasks are allocated to employees, a carbon copy (CC) should be sent to their direct line managers. This will give managers more control over their department and subordinates' time and priorities.

As mentioned by participants to the present research, different age groups can have differing experiences of the role of ICT plays in employees' work and family life. Thus, future research on this topic could examine in more detail these differing perceptions through a comparative study on the role of ICT as experienced across the generation gap.

For a more comprehensive focus, future research could also include households as their unit of analysis. This could add value to the investigation of the impact ICT has on the WLI of employees. Employees' households – especially their partner or spouse – could also show a different perception of these employees' ICT use and the impact of the devices on their WLI.

REFERENCES

Abareshi, A., Martin, B., & Molla, A. (2011). ICTS – new organizational form linkage in the Australian context: Theoretical model and research instrument. *JISTEM Journal of Information Systems and Technology Management*, *8*(3), 515–538. doi:10.4301/S1807-17752011000300001

Achimugu, P., Oluwagbemi, O., & Oluwaranti, A. (2010). An evaluation of the impact of ICT diffusion in Nigeria's higher educational institutions. *Journal of Information Technology Impact*, *10*(1), 25–34.

Afolabi, A. F., & Abidoye, J. A. (2011). Integration of Information and Communication Technology in Library Operations Towards Effective Library Services. *Journal of Educational and Social Research*, *1*, 113–120.

Aker, J., & Mbiti, I. (2010). Mobile phones and economic development in Africa. *The Journal of Economic Perspectives*, *24*(3), 207–232.

Allen, T. D., Herst, D. E. L., Bruck, C. S., & Sutton, M. (2000). Consequences associated with work-to-family conflict: A review and agenda for future research. *Journal of Occupational Health Psychology*, *5*(2), 278–308. doi:10.1037/1076-8998.5.2.278

Alwahaishi, S., & Snásel, V. (2013). Consumers' Acceptance and Use of Information and Communications Technology: A UTAUT and Flow Based Theoretical Model. *Journal of Technology Management & Innovation*, *8*(2), 9–10. doi:10.4067/S0718-27242013000200005

Anwar, M. A., Carmody, P., Surborg, B., & Corcoran, A. (2013). The Diffusion and Impacts of Information and Communication Technology on Tourism in the Western Cape, South Africa. *Urban Forum*, *25*(4), 531–545. doi:10.1007/s12132-013-9210-4

Arvanitis, S., & Loukis, E. (2014). An empirical investigation of the impact of ict on innovation in european hospitals. Presented at *ECIS2014*. Tel Aviv, Isreal.

Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: a case of the tail wagging the dog? *British Medical Journal*, *322*(7294), 1115–1117.

Becchetti, L., Bedoya, D., & Paganetto, L. (2003). ICT investment, productivity and efficiency: evidence at firm level using a stochastic frontier approach. *Journal of Productivity Analysis*, *20*(2), 143–167. doi:10.1023/A:1025128121853

Berkowsky, R. W. (2013). When You Just Cannot Get Away. *Information, Communication & Society*, *16*(4), 519–541. doi:10.1080/1369118X.2013.772650

Blignaut, A. S., Hinostroza, J. E., Els, C. J., & Brun, M. (2010). ICT in education policy and practice in developing countries: South Africa and Chile compared through SITES 2006. *Computers & Education*, *55*(4), 1552–1563. doi:10.1016/j.compedu.2010.06.021

Bogdan, R., & Biklen, S. (1998). *Qualitative research in education. An introduction to theory and methods*. Retrieved from http://eric.ed.gov/?id=ED419813

Boswell, W. R., & Olson-Buchanan, J. B. (2007). The Use of Communication Technologies After Hours: The Role of Work Attitudes and Work-Life Conflict. *Journal of Management*, *33*(4), 592–610. doi:10.1177/0149206307302552

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. doi:10.1191/1478088706qp063oa

Brough, P., Hassan, Z., & Driscoll, M. O. (2014). *Psychosocial Factors at Work in the Asia Pacific*. Dordrecht: Springer Netherlands. doi:10.1007/978-94-017-8975-2

Brynam, A. (2012). *Social Reserach Methods* (4th ed.). New York: Oxford Univesity Press.

BusinessTech. (2013). *Tablet war brewing in South Africa*. *BusinessTech*. Retrieved September 24, 2014, from http://goo.gl/Y0sZz9

Cardona, M., Kretschmer, T., & Strobel, T. (2013). ICT and productivity: conclusions from the empirical literature. *Information Economics and Policy*, *25*(3), 109–125. doi:10.1016/j.infoecopol.2012.12.002

Carmody, P. (2011). An Informationalised Economy in Africa? The Impact of New ICT on the Wood Products Industry in Durban, South Africa. *The Institute for International Integration Studies Discussion Paper Series*. Retrieved from http://ideas.repec.org/p/iis/dispap/iiisdp383.html

Casey, J. (2012). *The Impact of Technology on Our Work and Family Lives*. Retrieved November 02, 2014, from http://goo.gl/k8g3QS

Chesley, N. (2005). Blurring Boundaries? Linking Technology Use, Spillover, Individual Distress, and Family Satisfaction. *Journal of Marriage and Family*, *67*(5), 1237–1248. doi:10.1111/j.1741-3737.2005.00213.x

Chesley, N. (2014). Information and communication technology use, work intensification and employee strain and distress. *Work, Employment & Society*, *28*(4), 589–610. doi:10.1177/0950017013500112

Chesley, N., & Johnson, B. (2010). Information and communication technology, work, and family. In S. Seet & J. Chesley (Eds.), *Work and Family Encyclopaedia*. Chestnut Hill, MA: Sloan Work and Family Research Network.

Chiumbu, S. (2012). Exploring mobile phone practices in social movements in South Africa – the Western Cape Anti-Eviction Campaign. *African Identities*, *10*(2), 193–206. doi:10.1080/14725843.2012.657863

Clark, S. C. (2000). Work/Family Border Theory: A New Theory of Work/Family Balance. *Human Relations*, *53*(6), 747–770. doi:10.1177/0018726700536001

Connell, O., & Philip, J. (2007). *The impact of flexible working arrangements on work-life conflict and work pressure in Ireland* (No. 189). Dublin.

De Vos, A., Delport, C., Fouché, C., & Strydom, H. (2011). *Research at grass roots: A primer for the social science and human professions*. Pretoria: Van Schaik.

Delmas, N. (2014). *ITU Key 2005-2014 ICT Data*. *International Communications Union*. Retrieved December 02, 2014, from http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

Demerouti, E., Derks, D., Brummelhuis, L. L., & Bakker, A. B. (2014). New Ways of Working: Impact on Working Conditions, Work–Family Balance, and Well-Being. In C. Korunka & P. Hoonakker (Eds.), *The Impact of ICT on Quality of Working LIfe* (pp. 123–141). Dordrecht: Springer Netherlands.

Dlodlo, N. (2009). Access to ICT education for girls and women in rural South Africa: A case study. *Technology in Society*, *31*(2), 168–175. doi:10.1016/j.techsoc.2009.03.003

Donner, J., Gitau, S., & Marsden, G. (2011). Exploring mobile-only Internet use: Results of a training study in urban South Africa. *International Journal of Communication*, *5*, 24.

Du Plessis, E., & Human, S. (2007). Exploring a strategy to promote nurses' health research contribution. *Health SA Gesondheid*, *12*(4), 36–52.

Eby, L. T., Casper, W. J., Lockwood, A., Bordeaux, C., & Brinley, A. (2005). Work and family research in IO/OB: Content analysis and review of the literature (1980–2002). *Journal of Vocational Behavior*, *66*(1), 124–197. doi:10.1016/j.jvb.2003.11.003

Edwards, J., & Rothbard, N. (2000). Mechanisms linking work and family: Clarifying the relationship between work and family constructs. *Academy of Management Review*, *25*(1), 178–199. doi:10.5465/AMR.2000.2791609

Entz, A. (2009). *ICT and Family Affairs in a Thai Context*. Retrieved December 02, 2014, from http://goo.gl/j42Pqb

Fallahi, V. (2011). Effects of ICT on the youth: A study about the relationship between internet usage and social isolation among Iranian students. *Procedia - Social and Behavioral Sciences*, *15*, 394–398. doi:10.1016/j.sbspro.2011.03.110

Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: meta-analysis of psychological mediators and individual consequences. *The Journal of Applied Psychology*, *92*(6), 1524–41. doi:10.1037/0021-9010.92.6.1524

Geurts, S. A. E., Taris, T. W., Kompier, M. A. J., Dikkers, J. S. E., Van Hooff, M. L. M., & Kinnunen, U. M. (2005). Work-home interaction from a work psychological perspective: Development and validation of a new questionnaire, the SWING. *Work & Stress*, *19*(4), 319–339. doi:10.1080/02678370500410208

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of and Conflict Family Between Work. *The Acadamy of Management Review*, *10*(1), 76–88.

Greenhaus, J. H., & Powell, G. N. (2006). When Work and Family Are Allies: a Theory of Work-Family Enrichment. *Academy of Management Review*, *31*(1), 72–92. doi:10.5465/AMR.2006.19379625

GSMA. (2014). *GSMA Intelligence*. Retrieved November 02, 2014, from https://gsmaintelligence.com/markets/3788/dashboard/

Hall, B. H., Lotti, F., & Mairesse, J. (2013). Evidence on the impact of R&D and ICT investments on innovation and productivity in Italian firms. *Economics of Innovation and New Technology*, *22*(3), 300–328. doi:10.1080/10438599.2012.708134

Halpern, D. F., & Murphy, S. E. (2013). *From Work-Family Balance to Work-Family Interaction: Changing the Metaphor* (p. 304). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Haupt, H. (2012). *The Social Experience of Online Console Video Gaming in South Africa*. Johannesburg: Monash University.

Hennessy, S. (2010). Teacher factors influencing classroom use of ICT in Sub-Saharan Africa. *Itupale Online Journal of African Studies*, *2*, 39–54.

Higon, D. A. (2011). The impact of ICT on innovation activities: Evidence for UK SMEs. *International Small Business Journal*, *30*(6), 684–699. doi:10.1177/0266242610374484

Hill, C. E., Knox, S., Thompson, B. J., Williams, E. N., Hess, S. A., & Ladany, N. (2005). Consensual qualitative research: An update. *Journal of Counseling Psychology*, *52*(2), 196–205. doi:10.1037/0022-0167.52.2.196

Hoffmann, E., Farrel, D. ., & de Klerk, G. J. (2004). ICT, virtual offices and flexible work options: marketing and implementation strategies. *South African Journal of Information Management*, *6*(4).

Hoonakker, P. (2014). *The Impact of ICT on Quality of Working Life*. Dordrecht: Springer Netherlands. doi:10.1007/978-94-017-8854-0

Hubers, C., Schwanen, T., & Dijst, M. (2011). Coordinating Everyday Life in the Netherlands: a Holistic Quantitative Approach To the Analysis of Ict-Related and Other Work-Life Balance Strategies. *Geografiska Annaler: Series B, Human Geography*, *93*(1), 57–80. doi:10.1111/j.1468-0467.2011.00361.x

Internetlivestats. (2014). *Internet Users by Country*. Retrieved September 21, 2014, from http://www.internetlivestats.com/internet-users-by-country/

Jensen, C. C. (2013). *Native American women leaders ' use of information and communication technologies (ICTs) for work-life balance (WLB) and capacity building*. (Unpublished doctoral thesis). Pepperdine University, Malibu, California.

Kakabadse, N., Porter, G., & Vance, D. (2007). Addicted to technology. *Business Strategy Review*, *18*(4), 80–85.

Kalba, K. (2008). The adoption of mobile phones in emerging markets: Global diffusion and the rural challenge. *International Journal of Communication*, *2*(31), 631–661.

Kamaruzzaman, S., Salled, H., Zawawi, E., & Ali, A. (2010). Current use and needs of ICT in Malaysian building industry: the industry perspective. *Design + Built Journal*, *3*, 74–84.

Kılıçaslan, Y., Kayış, A. A., Sickles, R., & Üçdoğruk, Y. (2013). The Impact of ICT on Productivity: Evidence from Turkish Manufacturing Industry. *EY International Congress on Economics I (EYC2013), October 24-25, 2013, Ankara, Turkey*.

Kimathi, K. (2012). *Impact of ICT in education, entertainment, development, governance/politics & industry*. Retrieved December 02, 2014, from http://goo.gl/gT4iab

Korunka, C., & Hoonakker, P. (2014). *The Impact of ICT on Quality of Working Life*. Dordrecht: Springer Netherlands. doi:10.1007/978-94-017-8854-0

Koskivaara, E., Laukkanen, R., & Heinonen, O. (2011). ICT Supporting Daily Physical Activity-with Special Reference to Pedometers in the Step-Shape Project. *Scientific Journal of Riga Technical University, 46*, 110–114.

Koutamanis, M., Vossen, H. G. M., Peter, J., & Valkenburg, P. M. (2013). Practice makes perfect: The longitudinal effect of adolescents' instant messaging on their ability to initiate offline friendships. *Computers in Human Behavior*, *29*(6), 2265–2272. doi:10.1016/j.chb.2013.04.033

Kumar, R., & Prasad, Y. (2014). *Impact of ICT tools in Higher Education*. Delhi: A K Publications.

Lasrado, F., & Bagchi, T. (2011). A cross-cultural evaluation of the contemporary workplace and its managerial implications. *Social Sciences*, *2*(1), 1–15.

Leask, M., & Pachler, N. (2013). *Learning to Teach Using ICT in the Secondary School: a companion to school experience* (3rd ed.). New York: Routledge.

Liberman, B., Seidman, G., McKenna, K. Y. a., & Buffardi, L. E. (2011). Employee job attitudes and organizational characteristics as predictors of cyberloafing. *Computers in Human Behavior*, *27*(6), 2192–2199. doi:10.1016/j.chb.2011.06.015

Lindquist, E. (2013). *What's your name on Facebook*. Retrieved October 19, 2014, from http://lup.lub.lu.se/student-papers/record/3798810/file/3798813.pdf

Lindsay, S., Smith, S., & Bellaby, P. (2007). *The Impact of ICT on Family: Views From An Older Generation*. Retrieved October 07, 2014, from http://goo.gl/r0ESHi

Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. *Oxford Review of Education*, *38*(1), 9–24. doi:10.1080/03054985.2011.577938

Ljung, A., & Wahlforss, E. (2006). *Sensation : a Presence Enabler for Long-Distance Relationships using Skype and Visual Presence Representation*. Stockholm. Retrieved November 24, 2014, from http://goo.gl/U3WvBU

Maree, K. (2008). *First steps in research*. Pretoria: Van Schaik.

Maruis, M. (2012). *6 ways technology is changing the way we do business*. Retrieved September 21, 2014, from http://goo.gl/Uc08qR

May, K. (1991). *Interview techniques in qualitative research: Concerns and challenges.* Retrieved from http://psycnet.apa.org/psycinfo/1991-97197-008

Mays, N., & Pope, C. (2000). Qualitative research in health care: Assessing quality in qualitative research. *BMJ*, *320*(7226), 50–52. doi:10.1136/bmj.320.7226.50

Mortagy, Y., Boghikian-Whitby, S., & Mortagy, B. (2005). *The Utilization of ICT in Small and Medium Size Enterprises in Egypt*. Retrieved from http://goo.gl/v85fcx

Ollo-López, A., & Aramendía-Muneta, M. E. (2012). ICT impact on competitiveness, innovation and environment. *Telematics and Informatics*, *29*(2), 204–210. doi:10.1016/j.tele.2011.08.002

Papadakis, M., & Collins, E. (2001). *The Application and Implications of Information Technologies in the Home: Where Are the Data and What Do They Say?*. Arlington, VA: National Science Foundation.

Piazza, C. F. (2004, September 5). 24 / 7 Workplace Connectivity : A Hidden Ethical Dilemma. *The New York Times*. Retrieved from http://www.nytimes.com

Polkinghorne, D. E. (2005). Language and meaning: Data collection in qualitative research. *Journal of Counseling Psychology*, *52*(2), 137–145. doi:10.1037/0022-0167.52.2.137

Preda, A., Crisan, D., & Stanica, J. (2014). The Impact Of Ict On Innovation Performance In Europe. Case Of Romania. *Journal of Information Systems & Operations Management*, *8*(1), 197–206.

Raworth, K., Sweetman, C., Narayan, S., Rowlands, J., & Hopkins, A. (2012). *Conducting Semi-structured Interviews*. Oxford: Oxfam.

Rincon, A., Vecchi, M., & Venturini, F. (2012). *ICT spillovers, absorptive capacity and productivity performance.* Retrieved from http://eprints.mdx.ac.uk/9992/

Ritchie, J., Lewis, J., Nicholls, C. M., & Ormston, R. (2013). *The Foundation of Qualitative Research. Qualitative Research Practice: A Guide for Social Science Students and Researchers.* London: SAGE Publications.

Salehan, M., & Negahban, A. (2013). Social networking on smartphones: When mobile phones become addictive. *Computers in Human Behavior*, *29*(6), 2632–2639. doi:10.1016/j.chb.2013.07.003

Saltari, E., Wymer, C. R., & Federici, D. (2013). The impact of ICT and business services on the Italian economy. *Structural Change and Economic Dynamics*, *25*, 110–118. doi:10.1016/j.strueco.2012.07.004

SAPA. (2012). Number of South African Internet users grows. *Times Live.* Retrieved May 10, 2012, from http://www.timeslive.co.za

Schmidt, A., Pfleging, B., Alt, F., Sahami, A., & Fitzpatrick, G. (2012). Interacting with 21st-Century Computers. *IEEE Pervasive Computing*, *11*(1), 22–31. doi:10.1109/MPRV.2011.81

Segrin, C., & Flora, J. (2004). *Family Communication*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Selwyn, N. (2004). The information aged: A qualitative study of older adults' use of information and communications technology. *Journal of Aging Studies*, *18*(4), 369–384. doi:10.1016/j.jaging.2004.06.008

Shenton, A. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*, 63–75.

Shirazi, F., Ngwenyama, O., & Morawczynski, O. (2010). ICT expansion and the digital divide in democratic freedoms: An analysis of the impact of ICT expansion, education and ICT filtering on democracy. *Telematics and Informatics*, *27*(1), 21–31. doi:10.1016/j.tele.2009.05.001

Shuter, R. (2012). Research and Pedagogy in Intercultural New Media Studies. *China Media Research*, *8*(4), 1–5.

Sim, J., & Wright, C. (2000). *Research in Health Care: Concepts, Designs and Methods* (p. 402). Surrey: Stanley Thornes (Publishers) Ltd.

Snape, D., & Spencer, L. (2003). The Foundation of Qualitative Research. In J. Ritchie & J. Lewis (Eds.), *Qualitative research practice: A guide for social science students and researchers* (pp. 2–10). London: SAGE Publications.

Stahl, B., Heersmink, R., Goujon, P., & Flick, C. (2010). Issues, Concepts and Methods Relating to the Identification of the Ethics of Emerging ICTs. *Communications of the IIMA*, *10*(1), 33–43.

Tarafdar, M., Tu, Q., Ragu-Nathan, B., & Ragu-Nathan, T. (2007). The Impact of Technostress on Role Stress and Productivity. *Journal of Management Information Systems*, *24*(1), 301–328. doi:10.2753/MIS0742-1222240109

TechNimbus. (2011). *With More Undersea Cables, Africa is Now Hard-Wired into the Internet Backbone*. Retrieved September 28, 2014, from http://goo.gl/KFEkQ2

Tenakoon, U. S. (2007). Impact of the use of communication technologies on the work-life balance of executive employees. In *2007 Information Resources Management Association* (pp. 557–560). Hershey, PA: Information Research Management Association.

Thompson, M., & Walsham, G. (2008). ICT Research in Africa: Need for a Strategic Developmental Focus. In A. Bada & P. Musa (Eds.), *IFIP WG 9.4-University of Pretoria Joint Workshop*. Pretoria, South Africa.

Tolani-Brown, N. (2010). *ICTs and Sustainable Solutions for the Digital Divide*. New York, NY: IGI Global.

Turpin, M. (2013). Assessing the contribution of information technology to socio-economic development: A case study from rural South Africa. *The Journal of Community Informatics*, *9*(4).

Tusubira, F., & Mulira, N. (2004, September). Integration of ICT in organizations: Challenges and best practice recommendations based on the experience of Makerere University and other organizations. Paper presented at *Universities: Taking a leading role in ICT enabled human development*, Kampala.

Udemans, C. (2014). *African broadband slowest, most expensive in world – study*. *Humanipo*. Retrieved November 04, 2014, from http://www.humanipo.com/news/43647/african-broadband-slowest-most-expensive-in-world-study/

Van der Knaap, W. (2014). The impact of ICT on spatial planning education: 25 Years of blended e-learning. In L. Chova, A. Martinez, & I. Torres (Eds.), *6th International*

Conference on Education and New Learning Technologies (pp. 6136–6147). Barcelona: IATED.

Vermeulen, J. (2014). *How big is the PlayStation 4 in SA?*. Retrieved October 19, 2014, from http://goo.gl/J96rnv

Villiers, J. De, & Kotze, E. (2003). Work-life balance: A study in the petroleum industry. *SA Journal of Human Resource Management*, *1*(3), 15–23.

Wagner, C., Kawulich, B., & Garner, M. (2012). *Doing Social Research: A global contetx*. Bershire: McGraw-Hill Higher Education.

Walsh, S., White, K., & Young, R. (2008). Over-connected? A qualitative exploration of the relationship between Australian youth and their mobile phones. *Journal of Adolescence*, *31*(1), 77–92.

While, A., & Dewsbury, G. (2011). Nursing and information and communication technology (ICT): a discussion of trends and future directions. *International Journal of Nursing Studies*, *48*(10), 1302–10. doi:10.1016/j.ijnurstu.2011.02.020

Xobni. (2010). *New Survey From Xobni on Email Overload Shows There Is No Such Thing as a Day Off for Americans and Brits*. Retrieved from http://goo.gl/nH74sz

Yin, R. K. (2009). *Case Study Research: Design and Methods*. *Khalid Mohammed AlQahtani*. Thousans Oaks: SAGE Publications, Inc.

Zorn, T., Hector, C., & Gibson, J. (2008, May). Perceived Effects of Information and Communication Technology Adoption on Quality of Work Life: An Exploratory Study. Presented at *The Annual Meeting of the International Communications Association*. Washington, DC.

CHAPTER 3

CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This chapter focuses on the conclusion of the research based on the general and specific objectives as set out in chapter 1. Furthermore, the limitations of the research are discussed after which recommendations are made for organisation and future research.

3.1. CONCLUSION

Current research investigating the influence of ICT, particularly in its broader meaning, both locally and globally is limited (Abareshi, Martin & Molla, 2011; Papadakis & Collins, 2001; Shuter, 2012; While & Dewsbury, 2011). Thus the general objective of this research was to explore the role ICT plays in employees' work and family domains. To reach this objective the researcher explored the various ways in which employees use their ICT within both domains. He also examined how employees experience the role of their ICT devices on their relationships within these domains and their work-life interaction (WLI).

From the data analyses, four themes emerged. The first theme focused on the general use of ICT devices in employees' work and family domain. The second theme examined the role of ICT within employees' work and personal domain. Theme two revealed both positive and negative experiences of ICT within both domains and the fact that ICT increased the expectations of employees to be '*always available*'. The third theme emerging from the data entailed the challenges and limitations of ICT usage. These three themes answered the first four specific objectives of the current research, namely (1) exploring the role of ICT on employee's work domain; (2) exploring the role of ICT on employees' family domain; (3) exploring the role of ICT on employee's relationships at work; and (4) exploring the role of ICT on employees' relationships in their family domain. The fourth and final theme explored the role of ICT on employee's WLI and was related to the last objective, which was to explore the role of ICT on employees WLI.

Although the initial theme focusing on the general usage of ICT within both domains could be seen as self-explanatory, the theme provided background to employees' positive and negative experiences of ICT and the role these devices plays within both domains. The

findings highlighted the fact that the most common usage of ICT at work was for non-work purposes and the other way around where employees would use their ICT at home for work purposes. Employees' use of ICT for non-work purposes while at work, is in line with the findings of Wajcman, Bittman and Brown (2008). They indicate that mobile phones are more often used at work to contact family and friends than making contact with co-workers. Wajcman et al. (2008) further mention that, within their research, the interference in the direction from home to work was more prevalent than interference in the other direction. This finding is in line with the present research as employees mentioned that they would more often use their ICT at work for nonwork purposes, rather than using their ICT at home for work purposes.

Participants mentioned that they would use their ICT at work to gain general access to the Internet, especially for Internet banking. It may be that employees prefer to use the ICT's infrastructure of their organisation to perform these activities. A possible reason may be that one of the challenges of ICT, as indicated in the findings, is the expensive cost of Internet access in South Africa. This fact is supported by Udemans, (2014) who points out that Africa has the slowest and most expensive internet system in the world. Thus, by using their organisation's ICT infrastructure employees can save costs as they are not required to pay for the internet access. The main purpose of ICT is to "… store, retrieve and disseminate information" (Afolabi & Abidoye, 2011, p. 114). Therefore, it was expected that employee's would use their ICT to a large extend both at work and outside the work context for these purposes as highlighted in Theme 1 (i.e. for communication, record keeping and access to information, business systems and social media through the Internet).

Theme one also indicated that employees use ICT to be accessible and stay informed. Participants mentioned that their ICT allows them to be available to their employer and clients and provides them access to the Internet to stay informed throughout. However, participants also acknowledged that they experience the accessibility provided by ICT in a negative way, since it creates the expectation that they should be '*always available*'. This fact is supported by previous literature that found ICT fosters an 'always on work environment' (Middleton, 2007, p. 165). This blurs the boundaries between the work and nonwork domain (Porter & Kakabadse, 2006) and potentially increases work-life conflict (Boswell & Olson-Buchanan, 2007b). Theme 1 further indicated that employees would often use ICT for

relaxation purposes within both domains. Perse and Ferguson (2000) also found that one of the seven main reasons why people browse the Internet is to get some form of relaxation.

An interesting use of ICT mentioned by participants was to track or improve their wellbeing by using health applications such as Endomodo and their gym's online health tracking system. Participants mentioned that this motivates them to exercise, improving their wellbeing and limiting their visits to health practitioners, seeing that they could personally track their own health condition. This development is supported by Koskivaara, Laukkanen and Heinonen (2011) who found that ICT devices, particularly pedometers, increased an individual's physical activity. Participants showed an intention to continue an active lifestyle after the study.

Theme 2 highlighted the role of ICT usage within employees' work and family domain. The findings yielded both positive and negative experiences of ICT usage and an increased expectation brought about by continual ICT usage. Theme 2 further highlighted the role of ICT on employees' relationships both at work and outside the work context.

Regarding the positive experiences of ICT, the most noteworthy finding was employees' ability to be more efficient and productive. Not only does ICT allow employees to be more efficient and productive at work, it also increases their personal efficiency. The reason for that could be that ICT increases employees' availability and provides them with easy access to information and business systems. In this sense they felt that ICT was increasing their efficiency and productivity (both points were also highlighted by the employees as positive). Participants also mentioned that ICT allows them to be more flexible in their time management and the ability to multi-task, which also contributes to their increased efficiency. This fact is supported by Cardona, Kretschmer and Strobel (2013). They found through empirical research that ICT has a significant positive impact on productivity, and that productivity increases over time through the use of ICT.

ICT also helped employees establish and maintain virtual offices. Participants mentioned that ICT allows easy sharing and synchronisation of information and documents, and thereby increases their availability. These could be contributing factors in establishing and maintaining virtual offices. Participants mentioned that because they are able to communicate easily and share information with others, it helps them to run multiple offices, in different

locations, without needing to be at the office physically. Virtual offices allow employees to save time as they are able to collaborate with and provide a service to their clients through ICT without physically traveling to the client. This is also mentioned in previous literature of Demerouti, Derks, Brummelhuis and Bakker (2014) who found that ICT helped employees to save time by eliminating traveling time. Establishing and maintaining virtual offices was especially relevant to participants who were consultants, and thus are required to travel to their clients to do their job.

Another positive role of ICT discovered by the present research and supported by well-documented research (Borghoff, 2011), is the increased support of ICT to the notion of globalisation. Employees indicated that ICT allowed them to work for and be part of a global organisation, which helped them take on job roles that, in the past, were not possible. Previous research also mentions that the increase in globalisation through ICT increased the competiveness of organisations, seeing that they were required to compete not only locally but on an international level (Piazza, 2004). Although ICT supports globalisation, it also gives organisations a competitive advantage by providing them multiple options for communication to and with their customers and clients. This fact is supported by Kimathi (2012) who mentions that ICT allows organisations to improve products according to different customers' needs. This is because ICT has enabled organisations to communicate directly with the customer.

Overall the participants to the research experienced the role of ICT more positive than negative. However, employees did mention various negative experiences of ICT use. The primary experience of the positive role of ICT is unique to the current research. Most previous research studies on this topic (Casey, 2012; Kakabadse, Porter & Vance, 2007; Zorn, Hector & Gibson, 2008) only highlights both positive and negative influences of ICT but do not indicate which type of experience take prevalence .

Regarding the negative role of ICT, the most dominant experience was the increased pressure brought about by these devices. A further unique finding of the present research is that ICT compromised the chain of command (or hierarchy) in organisations – a condition participants also experienced negatively. Employees mentioned that ICT usage in an organisation can have detrimental effects on line management. Managers may not feel in control of their subordinates' priorities anymore as these employees easily receive multiple prompts for tasks

and activities from other managers in the business. This makes it difficult for managers to manage their department and subordinates.

ICT also creates distraction in employees' lives, specifically within their family domain and take time away from being with their families. Casey (2012) supports this observation by mentioning that ICT distracts individuals as they are partially attentive to the 'ping or beep' of their devices indicating yet another notification. As one participant to the present research mentioned, it is human nature to want to check these notifications. This also causes employees to lose track of time while they 'occupy' their ICT devices. Employees would initially just want to check the notification but end up answering multiple mails, a task that could take up to an hour. Previous literature also found evidence of individuals who lose track of time while using their computers (Ainley, Enger, & Searle, 2008; Seymour, 2005).

An interesting finding of the present research was the total dependency on ICT, which participants did experience as negative. Employees mentioned a total dependency on ICT, especially for work, to the extent where they became addicted to their ICT devices. This supports the present research on the notion that ICT addictiveness should be classified as a mental disorder in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) (Walton, 2014). The availability and access provided by ICT devices also changed the norm of accessibility. Individuals are nowadays expected to be available throughout to both their employer and family, seeing that ICT allows them this scope of accessibility.

Not only did the norm of accessibility change, but ICT also created renewed expectations of employees to be more productive. Employees mentioned that although a positive experience of ICT is an increased efficiency, the adoption of ICT overstretches expectations of increasing productivity. One employee mentioned that, after the adoption of ICT, they are expected to complete tasks quickly with the 'push of a button'. Along with the expectation to be available throughout, they are also required to respond to messages in a shorter timespan as in the past. This could also contribute to the increased work pressure that employees experience. The syndrome of such overstretched expectations of increased productivity and continuous accessibility is known as technostress in the literature (Tarafdar, Tu, Ragu-Nathan & Ragu-Nathan, 2007). Brod (1984), a well-known researcher in the field of technostress, defines this phenomenon as "a modern disease of adaptation caused by an inability to cope with the new computer technologies in a healthy manner. It manifests itself in two distinct but

related ways: in the struggle to accept computer technology, and in the more specialized form of over-identification with computer technology."

ICT played a significant role in the relationships within employee's work and family domains, both in a positive and negative way. A trend emerged from the findings that suggests that although ICT increases the frequency of communication between individuals, it decreased the quality of conversations. ICT helps employees to establish and maintain new relationships, particularly across geographical boundaries. Employees also mentioned that ICT help them to build more productive relationships. By using ICT, employees found that they are more efficient in their communication and are able to provide information to their co-workers quicker and easier. Although previous literature indicate an increase in work productivity by using ICT (Kamaruzzaman, Salled, Zawawi & Ali, 2010; Kimathi, 2012; Mortagy, Boghikian-Whitby & Mortagy, 2005), they do not mention the possibility of creating more productive relationships.

It was found that ICT helped employees establish new relationships and made their communication in these relationships more efficient. However, ICT also decreased the need for interaction and the intimacy of conversations in general. The lower intimacy of conversations could be the result of a decrease in face-to-face conversations. ICT makes it increasingly easy for employees to communicate with other individuals. As a result they would often send an instant message (through applications such as SameTime and Skype) or an email to persons in close proximity, rather than talking to that individual personally. Gallié and Guichard (2005) also indicate that the use of ICT lessens the need for face-to-face interaction, although certain meetings still require some physical interaction. In addition to the negative experiences of ICT, employees also pointed out certain challenges which their ICT holds for them.

One such challenge was the frustration voiced by participants when their ICT device was not working. Given the total dependency on ICT to complete work and tasks in general, when ICT is not functioning (e.g. offline or a depleted battery) this causes frustration. Literature found similar results where 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). Apart from the frustration

caused by slow internet speeds, the limitations in South Africa's ICT infrastructure, particularly the high price of Internet, is deemed to be a major challenge to employees.

Another challenge participants pointed out was the degree to which employees' environment adopted the use of ICT. The lack of or slow adoption of ICT within their work domains makes it necessary to complete various tasks twice. Employees mentioned 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 within the mining industry as the Mine Health and Safety Act No. 29 of 1996 still require certain hard copies of documents to be available to the Director of Mine Surveying.

The final theme emerging from the present research was related to the specific objective concerning work-life interaction (WLI). The findings firstly provided a better understanding of the perceptions of employees' current WLI and secondly highlighted the impact of ICT on this interaction. Employees experienced their WLI in general as interference between their work and family environment. They further mentioned experiencing ICT as contributing to this interference rather than creating a balance. A noteworthy finding was that employees only began managing the role of ICT between both domains after they realised its impact and made a conscious decision to start handling the impact. In order to do this, employees made use of two different approaches, either separately or in combination. Both approaches will be explained consequently.

The first approach is two-fold where employees would either limit their use of ICT devices, or limit the access on their ICT devices (particularly their work communication channels such as instant messaging and emails). Although previous literature indicates that individuals also use some form of similar approaches, the focus on a combination of these approaches is unique to the present research.

In limiting their use of ICT devices employees would implement set times and days to avoid usage of their ICT devices. These limits often would be times they spend with their families such as after work and on weekends. One employee mentioned that he refrains from using his mobile phone at all on weekends or when going on vacation. Fleck, Robison and Cox (2014) found the same results indicating that individuals would create rules to limit the time and place they use their ICT devices.

Apart from creating rules about when and where employees would use their ICT devices, they would also limit the access of these devices to work systems. Employees 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) also found evidence that employees limited their online access on devices to working hours as a strategy of maintaining the boundary between their work and family life. Nevertheless, according to findings of the present research, employees did allow work emails on their larger devices such as laptops and tablets. This could be due to the fact that a mobile phone is seen as a necessity to keep at all times and thus increasing the possibility of interference. On the other hand, tablets and laptops, also classified as portable devices, are not always carried by hand. This gives the individual a choice to use the device as required.

The second approach adopted by employees to the present research was the use of ICT devices to provide flexible working hours. This allowed employees to schedule their work around their family life. Also, as mentioned by one employee, this allowed her to attend to her duties as a mother whilst keeping up with her work load. Fleck et al. (2014) mention that although ICT provide 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 personal preferred balance.

Both approaches mentioned above are in line with the findings indicating that employees had to make conscious decisions (becoming the agent) to begin managing their ICT usage and exposure. Employees do this by following either approach, to help them reach a work-life balance.

The findings of the present research highlighted various roles that ICT play in employees' work and family domains. In this regard the research investigated the positive and negative roles of ICT usage, the impact of ICT on relationships and the approaches which employees follow to help them manage work-life interaction.

3.2. LIMITATIONS

The present research showed promising results regarding the positive role of ICT on employee's work and family domains. Research of this type is not without some limitations. Willig (2013) mentions that although valuable insights can be drawn from qualitative research it is limited in identifying trends, regularities or distribution to a whole population. The majority of the current research's population was Afrikaans-speaking males, a condition that does not reflect the multicultural society and language groups of South Africa. As mentioned by Klopper, Andersson, Minkkinen, Ohlsson and Sjöström (2006), South Africa is a multicultural society comprising different cultures, values, norms and ethnicities, and each culture could experience the role of ICT differently.

The researcher attended courses and received coaching on conducting qualitative research, and also conducted pilot-interviews himself. However, in this regard Terre Blanche, Durrheim and Painter (2006) mention that explorative research requires a certain skill level to extract valuable detail and richness from participants. Anderson, (2010) elaborates by stating that the research quality of qualitative research depends heavily on the individual skills of the researcher. Thus, such research is more likely to be influenced by the researcher's personal biases and idiosyncrasies. Even though the researcher in the present research attempted to overcome this limitation, it is still necessary to mention this variable.

Opdenakker (2006) also mentions that due to the synchronous character of face-to-face interviews the interviewer must concentrate much more on the questions to be asked and the answers given. This is also known as 'double attention', a difficult skill to acquire. Wengraf (2001) elaborates on this term by pointing out that interviewers need to ensure that all their questions are liable to be answered within the fixed time of the interview and at the level of depth and detail required to reach the stated objective. For this reason the researcher specifically did some pilot interviews and also jotted down field notes of the interviews afterwards. Jotting down field notes after the interview also avoid interference of the interviewing process. According to Britten (1995) interference could possibly cause the researcher to miss valuable information.

The researcher used a digital tape-recorder to record the interviews. Brynam (2012) argues that the use of a tape-recorder may disconnect respondents, who might become self-conscious

or alarmed at the idea of their words being preserved. He continues to explain that interviews with an interviewee who gets anxious about being tape-recorded are more likely to be less useful than other interviews. Sim and Wright (2000) also mention that the recording of interviews may encourage the inattentiveness of the researcher during the interviews. Although this should be mentioned as a limitation, the researcher did not notice any observable anxiety from any of the participants to the present research.

Furthermore, the present research only investigated the experience of the employee and, as Geurts and Dikkers (2002) contends, investigating multiple sources from both domains such as the employer and partner or spouses could also add valuable insights. Guest, Namey and Mitchell (2012) also refer to this as the unit of analysis for research and define it as "the level of abstraction at which you look for variability" (p. 26). They add that the most commonly used unit in social-behavioural research is the individual, however to reach higher levels of abstraction, researchers should include units such as groups, households or even communities.

Lastly the current research also made use of self-report data to obtain information. Segrin and Flora (2004) mention that the only sensible recourse for researchers interested in studying behaviours is simply to ask individuals about their occurrence and their feelings, known as self-report data. Segrin and Flora (2004) point out, however, that there are a number of limitations to self-reporting data. According to Segrin and Flora (2004), these limitations are social desirability, recall bias and mental editing.

3.3. RECOMMENDATIONS

Notwithstanding the above-mentioned limitations, the current research has important implications for organisations and future research.

3.3.1. Recommendations for the organisation

The benefit for organisations adopting ICT is evident in previous research that found 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 findings of the present research where employees acknowledged an

increase in their productivity and efficiency by using ICT. However, in order to be beneficial to all its employees, it is recommended that when organisations adopt ICT they do so across the board in the organisation. Participants emphasised this point. When ICT is not adopted across the board by the organisation and utilised by its employees, they would often need to complete tasks twice, which increased their workload and heightened pressure. Thus, adoption implies on the other hand, that employees should also 'buy into' this strategy by utilising the devices that are provided. It should also be noted that adopting ICT could give an organisation a competitive advantage and help support global trade.

The findings showed that the use of ICT also helped employees to manage their WLI. Therefore, it is advised that organisations consider adopting ICT to assist their employees in the management of these two domains. This can be done in two ways. Firstly, organisations can implement a code of conduct or provide guidelines to try and eliminate intrusive and excessive use of ICT, specifically after working hours. This strategy is supported by previous literature that mention that by implementing limits on contacting employees outside working hours decreases the inappropriate use of ICT (Drew & Murtagh, 2005). A striking example is the car manufacturing company Volkswagen that decided to switch off their BlackBerry server to avoid emails being sent after working hours (BBC, 2011). Secondly, organisation could pilot or implement flexible working hours and possible telecommuting initiatives. As mentioned by Drew and Murtagh (2005) this could be done by providing broadband work stations to employees whilst ensuring that this intervention does not increase the working hours of their employees.

Implementing flexible working hours and possible telecommuting could be beneficial to organisations and its staff. However, organisations should be aware that this could increase the expectancy from managers to reach their subordinates outside normal working hours. Employees may view such contact as infringement on their privacy as it provides managers with power outside the work environment. Managers should still be realistic in their expectations of their employees. The downside is that organisations could face possible legal action based on their worker's ICT addiction brought about by the increased expectations to be available throughout (Kakabadse et al., 2007).

To summarise, organisations could introduce possible policies with regard to ICT:

- Firstly, investigate an ICT implementation policy (to ensure ICT across the board).
- Secondly, consider an ICT policy for after-work hours (to ensure as little as possible infringement on employee's work-life interaction).
- Thirdly, implement a hierarchical policy with regard to ICT (to ensure the correct communication channels are followed for instructions and tasks regarding employees). As mentioned by the participants, particularly the managers, ICT compromised the hierarchy of an organisation and made it difficult to manage their subordinates.

3.3.2. Recommendations for future research

The research showed valuable insights into to the role of ICT on employees' work and family domains. Thus, it is recommended that future research probe deeper into some of the findings to gain a better understanding of the phenomena. Using a quantitative approach to investigate the influence of ICT on WLI, specifically within the South African context, could add value to research on this topic by confirming and validating the current findings. As mentioned by Leedy and Ormrod (2001) quantitative research "establish, confirm, or validate relationships and develop generalisations that contribute to theory" (p. 102). Current research into the phenomena of ICT and WLI within South African society is very limited in scope. Research that does exist focuses on improving individuals' ICT competence to reduce WLI (Villiers & Kotze, 2003), as well as the fact that telecommuting increase the balance between the work and family domain (Hoffmann, Farrel & de Klerk, 2004). Using a quantitative approach for future research could also eliminate the limitations experienced in the current research regarding face-to-face interviews and the tape-recording of interviews.

Future research could specifically investigate the relationship between the degree of ICT adoption – both by the employee and the organisation – and the WLI of employees. A possible suggestion would be a comparative study between organisations with high degree of ICT use and those whose employees show less ICT use. A comparative research can also be done on the differences between employees using one device against those using multiple devices. The focus can be on differences in (1) their WLI, (2) the decrease in face-to-face communication, and (3) their dependency on ICT. The trend the current research identified

according to which ICT increases the frequency of communication but decreases the quality of conversations could also be investigated in more detail. This could be done by focusing research particularly on the influence ICT usage exerts on communication between employees and their co-workers, as well as with family members.

Future research could also investigate the differences between generations, seeing that participants to the present research at times mentioned that the experiences vary across the generations. This observation is supported by previous research that younger women were much more dependent on and stressed by ICT than older women, indicating a generation gap regarding the impact of ICT (Buchmüller, Joost, Bessing, & Stein, 2011). Bailey and Ngwenyama (2010) investigated users of telecenters or internet cafe's (locations were individuals can get access to ICT). They found that generational differences affected aspects such as social identity, interactions and technology usage among these users.

The majority of participants to the present research were Afrikaans-speaking males. Therefore, it is also advised that future research use samples that are representative of South Africa's diverse multicultural society (Klopper et al., 2006). Future research could also investigate the impact everyday devices becoming 'smart' have on employees and their families (i.e. the development of 'smart' TVs, cars and appliances). Although some participants mentioned the use of such devices, the impact of these devices on employees WLI was not investigated in detail.

Lastly, future research can also include the experience of employers or partners in their sample, seeing that multiple sources could add value to understanding the role of ICT (Geurts & Dikkers, 2002). As mentioned by Guest et al. (2012), to reach higher levels of variability, researchers should also ensure that their unit of analysis includes groups, households or even communities. Guest et al. (2012) explains that the unit of analysis for research is the level of abstraction at which a researcher looks for variability. Thus, it's recommended that future research include the spouses or partners of employees in their samples, specifically when investigating the impact of ICT on WLI. One participant to the current research in particular mentioned that the researcher should also interview his wife as he perceived that she would have a very different opinion on his use of ICT and its impact on his work and their family life.

REFERENCES

Abareshi, A., Martin, B., & Molla, A. (2011). ICTS – new organizational form linkage in the Australian context: Theoretical model and research instrument. *JISTEM Journal of Information Systems and Technology Management*, *8*(3), 515–538. doi:10.4301/S1807-17752011000300001

Afolabi, A. F., & Abidoye, J. A. (2011). Integration of Information and Communication Technology in Library Operations Towards Effective Library Services. *Journal of Educational and Social Research*, *1*, 113–120.

Ainley, J., Enger, L., & Searle, D. (2008). Students in a Digital Age: Implications of ICT for Teaching and Learning. In J. Voogt & G. Knezek (Eds.), *International Handbook of Information Technology in Primary and Secondary Education* (Vol. 20, pp. 63–80). Boston, MA: Springer US. doi:10.1007/978-0-387-73315-9

Allan, B., & Lewis, D. (2006). Virtual learning communities as a vehicle for workforce development: a case study. *Journal of Workplace Learning*, *18*(6), 367–383. doi:10.1108/13665620610682099

Anderson, C. (2010). Presenting and evaluating qualitative research. *American Journal of Pharmaceutical Education*, *74*(8), 141.

Bailey, A., & Ngwenyama, O. (2010). Bridging the Generation Gap in ICT Use: Interrogating Identity, Technology and Interactions in Community Telecenters. *Information Technology for Development*, *16*(1), 62–82. doi:10.1080/02681100903566156

BBC. (2011). *Volkswagen turns off Blackberry email after work hours*. Retrieved November 09, 2014, from http://www.bbc.com/news/technology-16314901

Borghoff, T. (2011). The Role of ICT in the Globalization of Firms. *Journal of Modern Accounting and Auditing*, *7*(10), 1128–1149.

Boswell, W. R., & Olson-Buchanan, J. B. (2007). The Use of Communication Technologies After Hours: The Role of Work Attitudes and Work-Life Conflict. *Journal of Management*, *33*(4), 592–610. doi:10.1177/0149206307302552

Britten, N. (1995). Qualitative Research: Qualitative interviews in medical research. *BMJ*, *311*(6999), 251–253. doi:10.1136/bmj.311.6999.251

Brod, C. (1984). *Technostress: the human cost of the computer revolution* (p. 242). Boston, MA: Addison-Wesley.

Brynam, A. (2012). *Social Reserach Methods* (4th ed.). New York: Oxford Univesity Press.

Buchmüller, S., Joost, G., Bessing, N., & Stein, S. (2011). Bridging the gender and generation gap by ICT applying a participatory design process. *Personal and Ubiquitous Computing*, *15*(7), 743–758. doi:10.1007/s00779-011-0388-y

Cardona, M., Kretschmer, T., & Strobel, T. (2013). ICT and productivity: conclusions from the empirical literature. *Information Economics and Policy*, *25*(3), 109–125. doi:10.1016/j.infoecopol.2012.12.002

Casey, J. (2012). *The Impact of Technology on Our Work and Family Lives.* Retrieved November 02, 2014, from http://goo.gl/NAErP2

Demerouti, E., Derks, D., Brummelhuis, L. L., & Bakker, A. B. (2014). New Ways of Working: Impact on Working Conditions, Work–Family Balance, and Well-Being. In C. Korunka & P. Hoonakker (Eds.), *The Impact of ICT on Quality of Working LIfe* (pp. 123–141). Dordrecht: Springer Netherlands. doi:10.1007/978-94-017-8854-0

Deryakulu, D., Buyukozturk, S., Karadeniz, S., & Olkun, S. (2008). Satisfying and frustrating aspects of ICT teaching: A comparison based on self-efficacy. *International Journal of Social, Management, Economics and Business Engineering*, *2*(10), 202–205.

Doong, S. H., & Ho, S.-C. (2012). The impact of ICT development on the global digital divide. *Electronic Commerce Research and Applications*, *11*(5), 518–533. doi:10.1016/j.elerap.2012.02.002

Drew, E., & Murtagh, E. M. (2005). Work/life balance: senior management champions or laggards? *Women in Management Review*, *20*(4), 262–278. doi:10.1108/09649420510599089

Fleck, R., Robison, R., & Cox, A. (2014). Balancing Boundaries: The Role of Technology Boundary Work in Managing Work-Life Balance. *Depression*, *14*, 15.

Gallié, E.-P., & Guichard, R. (2005). Do collaboratories mean the end of face-to-face interactions? An evidence from the ISEE project. *Economics of Innovation and New Technology*, *14*(6), 517–532. doi:10.1080/1043859042000304052

Geurts, A., & Dikkers, S. (2002, May). The work-nonwork interface: What do we know and where should we go. Presented at *EURAM Conference*, Sweden.

Guest, G., Namey, E., & Mitchell, M. (2012). *Collecting qualitative data: A field manual for applied research*. Thousans Oaks, CA: SAGE Publications.

Hoffmann, E., Farrel, D., & de Klerk, G. J. (2004). ICT, virtual offices and flexible work options: marketing and implementation strategies. *South African Journal of Information Management*, *6*(4).

Kakabadse, N., Porter, G., & Vance, D. (2007). Addicted to technology. *Business Strategy Review*, *18*(4), 80–85.

Kamaruzzaman, S., Salled, H., Zawawi, E., & Ali, A. (2010). Current use and needs of ICT in Malaysian building industry: the industry perspective. *Design + Built Journal*, *3*, 74–84.

Kimathi, K. (2012). *Impact of ICT in education , entertainment , development , governance / politics & industry*. Retrieved December 02, 2014, from http://goo.gl/AXbuCR

Klopper, H., Andersson, H., Minkkinen, M., Ohlsson, C., & Sjöström, B. (2006). Strategies in assessing post operative pain - A South African study. *Intensive & Critical Care Nursing : The Official Journal of the British Association of Critical Care Nurses*, *22*(1), 12–21. doi:10.1016/j.iccn.2005.05.001

Koskivaara, E., Laukkanen, R., & Heinonen, O. (2011). ICT Supporting Daily Physical Activity-with Special Reference to Pedometers in the Step-Shape Project. *Scientific Journal of Riga Technical University*, *46*, 110–114.

Leedy, P., & Ormrod, J. (2001). *Practicle Reseacrh: Planning and Design* (7th ed.). Thousans Oaks: SAGE Publications.

Middleton, C. A. (2007). Illusions of Balance and Control in an Always-on Environment: a Case Study of BlackBerry Users. *Continuum*, *21*(2), 165–178. doi:10.1080/10304310701268695

Mine Health and Safety Act No. 29 of 1996. Retrieved from http://goo.gl/l807eR

Mortagy, Y., Boghikian-Whitby, S., & Mortagy, B. (2005). *The Utilization of ICT in Small and Medium Size Enterprises in Egypt*. Retrieved from http://goo.gl/v85fcx

Ollo-López, A., & Aramendía-Muneta, M. E. (2012). ICT impact on competitiveness, innovation and environment. *Telematics and Informatics*, *29*(2), 204–210. doi:10.1016/j.tele.2011.08.002

Opdenakker, R. (2006). *Advantages and Disadvantages of Four Interview Techniques in Qualitative Research.* Retrieved from http://goo.gl/EiRXIP

Papadakis, M., & Collins, E. (2001). *The Application and Implications of Information Technologies in the Home: Where Are the Data and What Do They Say?*. Arlington, VA: National Science Foundation.

Perse, E., & Ferguson, D. (2000). The benefits and costs of web surfing. *Communication Quarterly*, *48*(4), 343–359. doi:10.1080/01463370009385603

Piazza, C. F. (2004, September 5). 24 / 7 Workplace Connectivity : A Hidden Ethical Dilemma. *The New York Times*. Retrieved from http://www.nytimes.com

Porter, G., & Kakabadse, N. K. (2006). HRM perspectives on addiction to technology and work. *Journal of Management Development*, *25*(6), 535–560. doi:10.1108/02621710610670119

Preda, A., Crisan, D., & Stanica, J. (2014). The Impact Of Ict On Innovation Performance In Europe. Case Of Romania. *Journal of Information Systems & Operations Management*, *8*(1), 197–206.

Segrin, C., & Flora, J. (2004). *Family Communication*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Seymour, W. (2005). ICTs and disability: Exploring the human dimensions of technological engagement. *Technology and Disability*, *17*(4), 195–204.

Shuter, R. (2012). Research and Pedagogy in Intercultural New Media Studies. *China Media Research*, *8*(4), 1–5.

Sim, J., & Wright, C. (2000). *Research in Health Care: Concepts, Designs and Methods* (p. 402). Surrey: Stanley Thornes (Publishers) Ltd.

Tarafdar, M., Tu, Q., Ragu-Nathan, B., & Ragu-Nathan, T. (2007). The Impact of Technostress on Role Stress and Productivity. *Journal of Management Information Systems*, *24*(1), 301–328. doi:10.2753/MIS0742-1222240109

Terre Blanche, M., Durrheim, K., & Painter, D. (2006). *Research in Practice: Applied methods for the social sciences*. Cape Twon: University of Cape Town Press.

Udemans, C. (2014). *African broadband slowest, most expensive in world – study*. Retrieved November 04, 2014, from http://goo.gl/aTRJWW

Villiers, J. De, & Kotze, E. (2003). Work-life balance: A study in the petroleum industry. *SA Journal of Human Resource Management*, *1*(3), 15–23.

Wajcman, J., Bittman, M., & Brown, J. E. (2008). Families without Borders: Mobile Phones, Connectedness and Work-Home Divisions. *Sociology*, *42*(4), 635–652. doi:10.1177/0038038508091620

Walton, A. G. (2014). *Internet Addiction: The New Mental Health Disorder?* Retrieved October 08, 2014, from http://goo.gl/U4bJhs

Wengraf, T. (2001). *Qualitative Research Interviewing: Biographic Narrative and Semi-Structured Methods* (p. 424). London: SAGE Publications.

While, A., & Dewsbury, G. (2011). Nursing and information and communication technology (ICT): a discussion of trends and future directions. *International Journal of Nursing Studies*, *48*(10), 1302–10. doi:10.1016/j.ijnurstu.2011.02.020

Willig, C. (2013). *Introducing Qualitative Research in Psychology*. (3rd ed.). Bershire: McGraw-Hill Higher Education.

Zorn, T., Hector, C., & Gibson, J. (2008, May). Perceived Effects of Information and Communication Technology Adoption on Quality of Work Life: An Exploratory Study. Presented at *The Annual Meeting of the International Communications Association*. Washington, DC.

APPENDIX A

Informed Consent Form

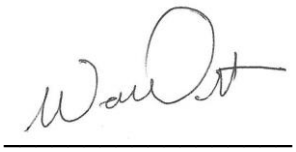
Dear Participant

This questionnaire forms part of a study conducted to explore the role of information and communication technology (ICT) on our work and family domains.

We assure you that *all* the information we receive will remain confidential and that it will only be used for research purposes. **Please work carefully through the biographical questionnaire, if you would like more information feel free to contact the researcher mentioned below.**

Thank you very much for your time and assistance

Yours Faithfully,



Wihan de Wet
071 485 3689
wihandw@gmail.com

APPENDIX B

Biographical Questionnaire

Consent

With the following signature I give consent that my responses may be used by the student for the purpose of his research. I am aware that all information will be kept confidential and that I may withdraw from the study at any time.

_____

Signature

Biographical Information

This section contains questions on your biographical background and ICT use. Please write your answers in the appropriate space.

Name and Surname	
Date of Birth	
Gender	
Home Language	
Current Position	
Industry	
Household Situation (eg. Married with children still living at home)	
Please name all the ICT devices you use on a daily basis (eg. Blackberry, Laptop, Kindle, iPad, desktop computer)	1. 2. 3. 4. 5.

APPENDIX C

Extraction of Transcription

All the interviews in the current research were tape-recorded and transcribe verbatim. The following is an example of the transcriptions of an interview conducted in Johannesburg at the home of the participant.

Researcher: Do you sometimes use your ICT devices at work, for non-work related activities?

Interviewee: Yes all the time. I've replied to personal e-mails. We have an informal structure with our management, that, depending on what level you are, you're allowed a certain amount of freedom, with what you do. For example, YouTube is blocked for all users, but, I'm allowed on Facebook. But it's blocked for other management levels. Certain networking stuff, we're allowed to do, like e-mails. So, as I said, it's unwritten, but, it's expected that, at a certain level they just trust the managers to get on with their job and do what's needed. At lower levels it's not allowed at all. The guys can get warnings, if they're on their phone during work hours.

Researcher: Within the lower levels?

Interviewee: Yes it depends on what your job description is as well, because the guys that's on purchasing gets to be on their phone all the times. Generally, if somebody works in stores for example, where they have to help somebody who's coming to the desk, for them to not be available because they're on their phone is a written warning offence.

Researcher: That's interesting. Thanks. For what and how do you use your ICT at home?

Interviewee: Mostly entertainment, and then, I have a lot of hobbies, so, a lot of my hobbies relate to my work, so in a way I use it as a skills extension tool. So, I'll use my ICT devices to extend my skills with it, in such a way that it actually also benefits my work. But it's a relaxing, entertaining thing for me, I pursue what I want, I don't let it get dictated by work requirements. It's just, if it fits in with work requirements then it's convenient. Also, you know, I use it for online banking and things like that, things that I wouldn't be able to get to during the day. So, ja, sort of internet stuff. I also use it for tracking my exercise, for gym and exercise and stuff like that, you know. Virgin Active have a really nice thing where you

can go on to they're website and track exactly what workouts you've done, exactly what you've been eating etcetera. Then it gives you feedback based on that, so I then track my body fat etcetera, my weight and my fitness levels and all that, so, which is nice for me because we've got quite a bad history of heart disease in my family. So if I wasn't for tracking it, I really need to be tracking it through a doctor or, you know, some sort of health care provider. Just so that, you know, I can keep cholesterol down and all the rest of it.

Researcher: That's very good. Do you sometimes use your ICT devices at home for work-related tasks?

Interviewee: Ja, I'm connected, I can remote to my Volt, so I do that every now and then when it's necessary.

Researcher: Just checking up or..?

Interviewee: I'll actually do a bit of work, I'll actually, you know, I can update drawings and upload it to the Volt and stuff like that over a weekend.

Researcher: Okay, so how then do you experience the influence of your ICT devices at work and on your work relationships?

Interviewee: I'm lucky in that the company's not that big, I mean we've got 140 people in the company. At the level I'm at there's only eight managers at that level, so, we see each other in person every day. We e-mail backwards and forwards all the time for I need this ordered, I need that done, I'll e-mail our drawings or whatever. Generally the biggest impacts I find is, as soon as you start, if you have a problem with someone and if you have a problem with the way somebody is doing something, then you just say, just put it in a email to me. Because, people might say something face to face, because you got no proof of it and no record and, you know, you might request that somebody does something and they say no, I'm too busy. But if you send it in an email, then you've actually got an electronic record, saying on this date at this time, you made the certain request, which, you know, is well within what the person is required to do. Then if they don't respond or if they respond saying, no I'm not going to do it, you then have a recourse to say, you know, one must say, listen, I'm battling to get this guy to do his job. So, it's a nice fall back tool for those sort of situations

and if you want proof. Especially in manufacturing, people, as an engineer, I design something in a specific way for a specific reason. It's no good if I then say to somebody, manufacture it in this way, and half way through the guy goes, no I don't think that's such a good idea and changes the design. The company I'm with was a small company ten years ago, there's still people who've been with the company for ten years who still have that small company thinking of, I can change the design if I need to, even though they've got no qualifications and no authorisation to do so. So, if I'm concerned that something won't be done exactly how it needs to be done, then I can just put it in an email. Then if the person changed the design for whatever reason, I can go back to them and say, I told you to do it like this. You needed to do it like this. So in terms of a good control structure, emails are used quite extensively. Other than that, I mean, I don't socialise with anybody at work in terms of, you know, I don't have anybody from work on Facebook and I don't have anybody on my personal email or anything like that. So, that's really the only area that it affects this sort of interpersonal relationships.

Researcher: How do you experience the influence of your ICT devices at home and on your personal relationships?

Interviewee: It's very easy to get distracted, because I do the whole hobby thing. It's very easy for me to sit down and, three hours later, you know, Janine's asleep and we haven't spoken the whole evening. So, we make a point of saying, okay, well we will sit down and have dinner together every night and we'll sit for the duration of dinner and not touch your cell phone and chat to one another and all the rest of it. And then if, during the evening, one of us wants to chat, then it's, you drop what you're doing and you chat, you. It's fairly, sort of unspoken rules that you do, don't let that sort of stuff get in between.

Researcher: So what you're saying is, you guys made a point of it.

Interviewee: Ja, I think it's more a values thing that we automatically assume that that's what's expected, that any sort of thing that you're doing from a technology point of view is less important than the communication between the two of us. So, that just automatically became a priority. We use it to, like, watch movies and stuff like that, so sometimes it is actually enabling in terms of, you know, we're going to snuggle now and we'll, you know, go

on the internet, search for a pizza place that delivers, get them to deliver and sit and watch a movie we downloaded.

Researcher: So it's a nice way of spending time together?

Interviewee: Yes.

APPENDIX D

Work Protocol for Co-coder

The data analysis includes the following:

- Field notes for each interview
- Transcriptions of each interview
- Initial themes identified from transcriptions

During the coding process the following is done as part of the data analysis:

- The researcher read and re-read the transcriptions to obtain an overall picture of the context
- The researcher condensed sections of the interviews into meaningful units.
- The researcher together with the co-coder read all the meaningful units to get an overview of the context
- Together with the co-coder the researcher categorised the units into broad themes
- After categorising the units into broad themes the researcher and the co-coder explored and summarised similar smaller themes to divide the broad themes into smaller sub-themes for reporting by use of tables.

APPENDIX E

Example of Observation Notes

Interview Notes

Participant: 14

Date: 9 February 2014

Place: Home in Randburg, Johannesburg

The following are observed during the course of the interview:

Methodology: The interview was conducted at the dining room table in the participant's apartment. The participant signed the consent form and completed the biographical information sheet while the researcher explained the purpose of the research. The researcher then requested the consent to tape-record the interview and informed the participant that all information will be kept confidentially and only used for the purposes of the current research. The participant did not seem anxious about being recorded and was very comfortable with the interviewing process. The participant was eager to partake and at times elaborated in much detail on topics, providing valuable information to the researcher. The interview lasted 28 minutes after which the researcher thanked the participant and informed him that if he would like to withdraw from the research at any stage or has any additional questions he can contact the participant.

Personal: The researcher felt comfortable with doing the interview as he felt confident in his understanding of the topic. This was also the 14th interview the researcher conducted and the researcher felt comfortable with the process of interviewing.

Theoretical: The participant added valuable information the themes as he extensively used ICT in his professional and personal life. He also made use of more than four ICT devices and had extensive knowledge of the application of ICT in his organization. The participant highlighted the use of ICT to control his work environment and mentioned multiple times how he utilized ICT to assist him in working from home.

APPENDIX F

Language Editor

17 La Rochelle Street
Berg-en-Dal
WELLINGTON
7655
30 November 2014

TO WHOM IT MAY CONCERN:

I hereby confirm that the dissertation by Mr JW de Wet was edited and groomed to the best of my ability, including some recommendations to improve the language and logical structure as well as enhance the presentation.

Rev Claude Vosloo
Language and knowledge practitioner and consultant

Home of Creativity/Kreatiwiteitshuis
http://homeofcreativity.co.za/info

South African Translator's Institute reference no: 100 2432
Associate Member of PEG (Professional Editor's Group)

Home of Creativity ULTD

Don't think outside the box, reinvent the box