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VUB VRIJE UNIVERSITEIT BRUSSEL

EXPLORING THE ACCESS, USAGE AND PERCEPTIONS OF ICT OF WOMEN IN MARGINALISED COMMUNITIES IN SOUTH AFRICA

A thesis submitted in fulfilment of the requirements for the joint degree of

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by

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ABSTRACT

The experiences and perceptions of ICT access and usage by women in marginalised South African communities is sorely under researched. Where information from a gender-based perspective reflecting potential digital gender disparities exists, it is typically a statistical view of the ICT landscape (largely reflecting access). Exploration of the complex underlying socio-cultural factors affecting women's ICT usage is under-represented. There is an urgent need to hear women's own voices and perspectives on such intricate and often obscure subject matter. This research has aimed to bring traditionally overlooked perspectives to the fore by exploring the experiences and perceptions of women in marginalised South African communities regarding ICT access and usage. This qualitative study, guided by a feminist phenomenological perspective, focused on the individual lived experiences of twelve women living in three marginalised areas of the Western Cape of South Africa. Data were collected via semi-structured interviews and analysed through the Interpretative phenomenological analysis (IPA) approach.

The findings showed that the women had strong attachments to ICT and had integrated it into their own individual contexts, to fit their needs and activities. ICT had been interwoven into various social, economic, educational, political, cultural, recreational and spiritual dimensions of life. A range of factors emerged as having influence on women's digital participation. Some of the more significant barriers were digital skills and confidence, poor social support systems, affordability of ICT, awareness of personally beneficial opportunities, time constraints, resistance from a male partner and poor literacy. Additionally, the women lived in highly gendered environments, with socially-constructed gender norms, roles and identities, which had a strong influence on digital experiences and perceptions. This socio-cultural gender inequality was fundamental in the time constraints, and in the power dynamics and resistance women faced from male partners. Findings indicated that gender identities and traits disadvantage females in the digital context, for example ideas of femininity being viewed as conflicting with a perceived 'dirty' ICT field. Detrimental perceptions associating sophisticated ICT activity with males were reportedly prevalent in the communities and some of the women interviewed subscribed to the essentialist theory which considers men inherently better suited to technology. These findings have important implications for policies and practices in view of enhancing the digital inclusion of women in marginalised South African communities. Recommendations towards this end are outlined, specifically centred on gender-sensitive approaches in the planning and implementation of digital inclusion initiatives.

Keywords: women, ICT usage, marginalised communities, gender, experiences, feminist phenomenology, South Africa

DECLARATION

I declare that "**Exploring the access, usage and perceptions of ICT of women in marginalised communities in South Africa"** is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.

C. Pokpas

..... 12/08/2019.....

Carlynn Pokpas **Date**

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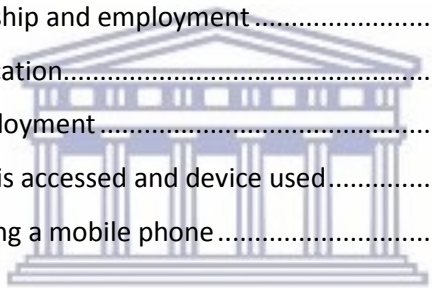

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CHAPTER 1:

INTRODUCTION

1.1 INTRODUCTION

Information and communication technologies (ICT) offer immense opportunities for social, economic and political participation in society. Therefore, it has particular value for marginalised women as a traditionally disempowered group. At present, however, women form an alarmingly large proportion of the digitally disconnected or excluded (GSMA Connected Women, 2018; Intel, 2012; OECD, 2018). In an attempt to address this, a great deal of focus has been directed at the role of gender in the digital age. Exploration of the so-called 'digital gender divide' has extended beyond differences in the extent of access to ICT between men and women, to the quality of usage. Once considered largely due to men being innately more interested in technology and women more technophobic, today this divide is largely recognised as reflecting and exacerbating the gender inequalities outside of the digital sphere. Hilbert (2011, p. 20) described the relationship between gender and ICT as follows:

> Traditionally, longstanding inequalities prevent women from accessing ICT, leading to a vicious circle between digital exclusion, unemployment, low income and lacking education. However, once having access to ICT, this vicious circle can be turned into a virtuous circle, whereas the identified positive attitudes of women toward ICT enable them to circumvent and fight existing inequalities.

In offering new possibilities for employment, increased income, access to information and knowledge, educational opportunities, healthcare services, and making their voices heard, ICT provides women with "leapfrog" opportunities to improve their quality of life (OECD, 2018), and lift themselves out of unfavourable conditions (Hilbert, 2011). In doing so, they potentially transform power relations and existing gender inequality (Gurumurthy & Chami, 2014; Radloff & Moolman, 2013; Wakunuma, 2013). Women's empowerment in this sense is vital in national economic development and developmental goals. For example, "women's control over resources is associated with better outcomes in family planning; maternal, newborn, and child health; nutrition; and agricultural development" (Gates, 2014, p. 1274). The African Development Bank (2015) has claimed that achieving gender equality and women's empowerment could increase the productive potential of as many as one billion Africans, and result in massive growth and development for the continent as a whole. The empowerment of women, therefore, is not only essential for individual development but directly aligned and crucial to the advancement of the family, the community and the country

(Intel, 2012; OECD, 2018). Efforts must thus be made to encourage the equitable participation of women in the digital economy.

1.2 BACKGROUND

1.2.1 Women in marginalised communities in South Africa

South Africa is one of the most unequal countries in the world, comparable to advanced economies in one respect, yet also plagued by incredibly high levels of poverty (The World Bank, 2018). The World Bank (2018) stated:

> Poverty is consistently highest among black South Africans, the less educated, the unemployed, female-headed households, large families, and children. Further, poverty has a strong spatial dimension in South Africa, a demonstration of the enduring legacy of apartheid. Poverty remains concentrated in previously disadvantaged areas, such as the former homelands – areas that were set aside for black South Africans along ethnic lines during apartheid.

Though "*previously* disadvantaged" is the commonly used terminology, it can be inferred from the report that these areas typically continue to be low-income and under-resourced. The term disadvantaged seems to be used interchangeably with marginalised in the literature. Rahman (2006, p. vii) described "disadvantaged groups or marginal communities" as being "unable to take advantage of opportunities that may be available to others in a society, or a country". This may be for various reasons – poverty being one. At this stage, it is important to note Shefer's (2010, p. 382) point that: "Apartheid South Africa was not only a society built on white privilege and economic and ideological power with black disempowerment and oppression, but was also a deeply patriarchal society." Black and coloured[1] women in South Africa have thus faced multiple levels of oppression.

The South African government has recognised the lower social positioning and limited opportunities available to women in society, particularly the most marginalised. In the National Development Plan detailing a 'Vision for 2030', the National Planning Commission (2011, p. 6) declared:

> If we are to eliminate poverty and reduce inequality, we need to engage seriously with the impact of gender on people's life chances and opportunities. The factors that determine the life chances of women are generally worse than for men, and they are also affected by race, geographic location, age and class. We have chosen to treat it as an integrated issue that runs throughout the plan.

[1] 'Black' and 'coloured' were the socially constructed apartheid racial classifications for 'non-white' groups. They continue to be used and carry social meanings.

Great strides have been made towards achieving some of the goals aimed at realising gender equality, in the area of education, for example. However, South Africa continues to fall short in addressing gender inequality in critical areas such as health and reproductive care, as well as employment and income. For example, recent statistics indicated that in South Africa, women's income is only 48% of that of men[2] (Lawson et al., 2019). Even more disturbing, is the incredibly high level of gender-based violence (OHCHR, 2015; SAHRC, 2018). The South African Human Rights Commission (SAHRC, 2018, p. 3) reported that "in South Africa unequal power relationships and patriarchy continue to operate and maintain gender hierarchies through essentialised notions of gender and physical and/or sexual violence". Having some of the most progressive legislation in the world has not weakened the deeply embedded patriarchy in South African society, driving gender inequality.

1.2.2 Women and ICT

The OECD (2018, p. 114) recently warned of "many worrying signs of a widening digital gender divide and the compounded effect that its different components may have in the future". A 2018 report revealed that more than 1.2 billion women in low- and middle-income countries did not use mobile internet – a 26% difference between males and females, translating into 327 million fewer women than men employing the use of this technology (GSMA Connected Women, 2018)[3]. The gap was wider in Africa where 34% fewer women than men had a smartphone that enabled them to connect to the Internet (GSMA Connected Women, 2018). This is important in that mobile phones have generally been framed as the technology to overcome digital exclusion in these specific regions where access and use of computers is poor. South Africa is reported to have smaller gender disparities in ICT access and usage than other African countries (Gillwald, Mothobi, & Rademan, 2018). However, the gender gap persists, particularly in Internet use and research demonstrated that women were less active in specific online activities such as using the Internet for work-related purposes (Gillwald et al., 2018). This particular disparity in usage is a telling illustration of the need to increase women's meaningful use of ICT.

[2] The figure of 48% is before social protection transfers like pensions and child benefits. After such transfers, women's income is worth 57% of men's.

[3] While important and typically referenced in digital divide discourse, it is necessary to acknowledge the problem of data with rigour and methodological issues (non-representative, non-peer reviewed or officially approved statistical data) making claims about digital inequality in regions or between groups. The global data underlying datasets such as that of GSMA: Connected Women and the World Wide Web Foundation (referenced further below) is derived from the ITU, which is unable from the supply side data which it is reliant on, to make the claims it does about numbers of Internet users in predominantly prepaid mobile markets or the sex disparities between them. For an in-depth critique of global ICT indices, see Esselaar, Gillwald and Stork (2017).

The digital barriers of affordability and ability have traditionally dominated discussion in digital divide discourse. In the context of a digital *gender* divide, conservative socio-cultural gender norms, deeply entrenched in many communities, influence the practices and discourses of ICT use by both men and women and have proved to be a significant barrier to ICT usage for many females (Buskens & Webb, 2014; GSMA, Cherie Blair Foundation for Women, & Vital Wave Consulting, 2010; Intel, 2012; Scott, 2017). These norms intersect with the mentioned barriers in various ways, for example lower income and employment of women may exacerbate the challenge of affordability, and lower education and higher rates of illiteracy of women may exacerbate the challenge of skills and ability (Deen-Swarray, Gillwald, & Morrell, 2013; Intel, 2012; OECD, 2018). While costs of ICT and poor digital skills affect men as well, gendered social norms present challenges unique to women. This includes the limited time at their disposal given their additional responsibilities such as unpaid housework and childcare; internalised stereotypical beliefs of women as less capable or not suited to technical careers and school subjects and; overall lower societal and/or familial support for female digital participation (Cheryan, Master, & Meltzoff, 2015; Dutta, 2015; Intel, 2012; Vekiri & Chronaki, 2008; World Wide Web Foundation, 2015b).

Addressing these barriers to women's digital participation is necessary for them to capitalise on the available opportunities and benefits. As already noted, this would not only improve women's lives at an individual level, but would also have implications for the entire social and economic landscape of South Africa and significantly assist in achieving the envisaged national goals.

1.3 PROBLEM STATEMENT

Addressing digital gender divides and enhancing the digital participation of women in marginalised communities requires comprehensive knowledge of women's digital engagement. Unfortunately, the use and perspectives of ICT by women both in a developmental and a South African context is sorely under researched. Where information from a gender-based perspective reflecting potential digital gender disparities exists, it is typically a statistical, surface view of the ICT landscape (largely reflecting access), rather than a nuanced understanding of the complex underlying socio-cultural factors affecting women's ICT usage. Statistical data showing relatively little difference in mobile ownership between South African males and females, for example, may be uncritically accepted as an indication of local digital gender equality. In reality the multifaceted gender-based factors related to usage may leave many women at various levels of exclusion (Deen-Swarray et al., 2013). Adam and Richardson (2001, p. 144) explained that quantitative findings on this subject "remain important and must not be dismissed but they are only part of the story. Concentrating on statistics at the

expense of understanding the reasons why we have the situation we have at present does little to offer hope for change."

More information is needed to shed light on how South African women in marginalised communities access and use ICT, their perceptions surrounding technology, the challenges they face in digital participation, and their personal perspectives on a potential intersection between ICT and gender in their communities. Research in the Western Cape of South Africa has established a relationship between patriarchal gendered social beliefs – noted as pervasive – and social issues such as gender-based violence and HIV/AIDS (Strebel et al., 2006). Given that such socio-cultural gender inequality is said to relate to ICT usage (Buskens & Webb, 2014; GSMA et al., 2010; Intel, 2012) it is significant how little is known about whether and to what extent these same damaging social norms in the province potentially affect women's ICT activity. There is an urgent need to hear women's own voices and perspectives on such intricate and often obscure subject matter. This greatly lends itself to in-depth qualitative investigation.

This research contends, therefore, that using women's own perspectives to gain a deep and nuanced understanding of the subject of digital participation of women in marginalised communities, provides for fresh and valuable insights, which can contribute to policies, strategies and successful interventions aimed at enhancing women's digital participation. A dearth of information and understanding of the complexity of these issues might potentially lead to the uncritical implementation of strategies and interventions, which focus only on the symptomatic access related issues, or include substantial gender equity issues only on paper and not in implementation (Deen-Swarray et al., 2013; Steeves & Kwami, 2012).

1.4 RESEARCH QUESTION

In accordance with the identified research problem, the following research question and objectives were adopted:

The main research question:

What are women in marginalised communities' experiences and perceptions with regard to ICT access and usage?

1.5 RESEARCH OBJECTIVES

1. To explore the experiences of ICT access and usage of women in marginalised communities.
    a. To understand the ICT access and ownership patterns of women.
    b. To determine the extent of women's usage and understand the purposes for which women use ICT.
    c. To understand the way in which women perceive ICT.
2. To explore and understand the factors which play a role in the access and usage of ICT by women in marginalised communities.
    a. To understand the factors influencing ICT usage of women.
    b. To determine whether and to what extent socio-cultural gender inequalities or constraints are a factor in ICT usage.
3. To recommend strategies, practices and policies that would facilitate the enhanced digital inclusion of women in marginalised communities.

1.6 APPROACH TO THIS STUDY

This study was guided by the theoretical perspective of feminist phenomenology. The objectives of this study were facilitated by a qualitative research approach, semi-structured individual interviews in the collection of data, and the use of the Interpretative phenomenological analysis (IPA) approach in the analysis of data.

1.7 DELIMITATION OF THE STUDY

This study is focused on and confined to women living in the three areas of Mitchells Plain, Saldanha Bay and Khayelitsha in the Western Cape of South Africa. The scope of the content reported on in this dissertation is the salient issues related to women's experiences in accessing and using ICT, their challenges in this regard, and their perspectives surrounding a potential relationship between ICT and gender.

1.8 OUTLINE OF THE CHAPTERS

Chapter 1 (Introduction) outlines ICT, gender and women in marginalised communities, providing a broader background of the topic and more specific context to the study. It outlines the objectives which the study aims to achieve.

Chapter 2 (Literature review) provides a thorough review of the relevant local and international literature on salient issues and perspectives related to gender and ICT usage. It explores the main themes and debates surrounding the subject. A sub-section of this chapter is dedicated to the findings of the Research ICT Africa (RIA) survey on ICT access and usage, which was conducted in 2014 on behalf of the Western Cape Department of Economic Development and Tourism (DEDAT).

Chapter 3 (Research methodology) describes the design, approaches and methods employed during the research as well as the reasons for selecting them.

Chapter 4 (Results) presents the empirical findings revealed through data collection and analysis. An in-depth description of each individual woman interviewed is provided, including her background and context and a detailed account of the patterns of her digital activity.

Chapter 5 (Interpretation of the findings) answers the research question by integrating the analysis of findings with the existing literature in the form of a rich, in-depth discussion.

Chapter 6 (Conclusion) reviews the main findings of the study as related to the research question, and provides recommendations for strategies, practices or policies that would contribute towards enhanced digital participation of women in marginalised communities. It then describes the limitations of the study and highlights areas of possible future research.

CHAPTER 2:

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter provides a comprehensive review of the salient literature relating to women and ICT. It includes a general overview of developments in the field of ICT and conceptualises the digital divide. The discussion then shifts to the social construct of gender and the movement towards women's empowerment. These issues are then linked in a nuanced discussion on digital gender divides, including the state of women's access and use of ICT, and the factors which influence their digital participation. The chapter concludes with an overview of the findings of the Research ICT Africa survey on ICT access and usage, focusing specifically on the component related to women in Mitchells Plain, Saldanha Bay and Khayelitsha – the areas in which the current study is focused.

2.2 INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

This section provides an overview of the ICT landscape and digital developments over recent decades, both globally and in South Africa. It then explores the notion of the digital divide, examining key underlying issues and discourses that have evolved in relation to its conceptualisation.

2.2.1 Global and domestic developments

The degree of technological advancement in society over the past few decades has been nothing short of revolutionary (World Bank, 2016; World Economic Forum, 2015b). Some have gone so far as to describe the impact of ICT – the internet, mobile phones and a range of other tools used to collect, store, retrieve, analyse and share information digitally (World Bank, 2016) – as possibly even more profound than that of the industrial revolution (Van der Weide, 2012). The significance and implications of these information and knowledge sharing tools have been recognised in several large-scale global movements such as the World Summit on the Information Society (WSIS), which saw international stakeholders commit to a vision of a "people-centred, inclusive and development-oriented information society" (ITU, 2015). More recently, bodies such as the United Nations (UN) have emphasised the role of ICT in achieving crucial developmental objectives, particularly noting its capacity to either enable or strongly support the post-2015 Sustainable Development Goals (SDGs), including a focus on education, health, job creation and ensuring good governance and effective

institutions (UN System Task Team on the Post-2015 UN Development Agenda, 2012). The need for universal access to these technologies was highlighted alongside that of earlier global objectives such as the provision of water, sanitation and transport (UN System Task Team on the Post-2015 UN Development Agenda, 2012). This was aptly expressed by the UN specialised ICT agency, the International Telecommunication Union (ITU) (2004, p. 11):

> The digital revolution … fired by the engines of Information and Communication Technologies, has fundamentally changed the way people think, behave, communicate, work and earn their livelihood. It has forged new ways to create knowledge, educate people and disseminate information. It has restructured the way the world conducts economic and business practices, runs governments and engages politically. It has provided for the speedy delivery of humanitarian aid and healthcare, and a new vision for environmental protection. It has even created new avenues for entertainment and leisure …. [The digital revolution] has the capacity to improve living standards for millions of people around the world. Moreover, better communication between peoples helps resolve conflicts and attain world peace.

The spread and progression of ICT since the WSIS has been rapid to say the least, evident in analogies comparing the impact to that of a tsunami wave (Van der Weide, 2012). In 2017, it was estimated that the number of individual Internet users would exceed 3.5 billion within the year, or 48% of the world population (up from 29% in 2010) (ITU, 2017b). Recent years have also shown significant growth in the capability, speed and quality of networks and devices. Broadband (often high-speed), smartphones and tablets are now the norm in many countries; the demand and use of social media has become ingrained in much of society; data-storage capacity through cloud applications is immense and a plethora of digital applications have been integrated into and often replaced traditional ways of functioning (ITU, 2017b; World Bank, 2016). Even in regions with lower ICT penetration, growth is significant, for example the World Bank (2016) stated that in developing countries, more households now own a mobile phone than have access to clean water or electricity.

It is specifically in these developing countries that ICT is no longer a luxury but essential for development (World Bank, 2011). The World Bank has suggested that ICT enables transformation, innovation and connection. Examples are increasingly evident in the African context, illustrating how "ICT innovations are delivering home-grown solutions in Africa, transforming business and driving entrepreneurship and economic growth" (Millard, 2015, p. 7). Mobile technology has been a fundamental part of this movement and the number of unique mobile subscribers in Sub-Saharan Africa is predicted to surpass half a billion by 2020 (GSMA, 2017). This has been largely attributed to the rise of low-cost and low-power-consuming devices as well as lower data costs and the option of prepaid services, which have led to mobile being the primary (and often sole) means of ICT engagement in developing countries (APC, 2008; Arnold, Van Baal, Demary, & Schiffler, 2012; Smith,

2014). The past decade has also seen the continent's Internet bandwidth grow 20-fold with hundreds of thousands of kilometres of new cables laid to provide access to those previously excluded from the benefits of ICT and afford an increasing number of citizens with high-speed Internet (Millard, 2015; World Bank, 2013). The eTransform Africa report developed by the World Bank and African Development Bank, together with the African Union, provides practical examples of ways in which ICT is being used innovatively to contribute to a range of areas including climate change, education, financial services, agriculture, government services, health and trade facilitation (World Bank, 2013).

In South Africa specifically, the National Development Plan (NDP) recognises the crucial role of technology and the ICT sector in the country's economic growth and poverty reduction (Gabriels & Horn, 2014; National Planning Commission, 2011). The mobile segment of the sector has been identified as particularly dynamic; in 2017, The World Bank (n.d.) estimated that there were 162 mobile cellular subscriptions for every 100 South Africans. According to the National Planning Commission (2011), mobile devices were in greater use than more traditional devices, including the radio, television and personal computers. Fixed-to-mobile substitution has been extensive with continuously declining rates of fixed-line usage and an ever-growing mobile-only population (Gillwald, Moyo, & Stork, 2012). The Internet penetration in the country has, however, been less rapid, with a reported 54% of its citizens Internet users in 2016 (The World Bank, n.d.).

While South Africa has made considerable progress in the ICT space, particularly in terms of ownership of or access to mobile devices, Subscriber Identity Module (SIM) cards and basic voice telephony, the NDP has described South Africa's ICT infrastructure as "abysmal" in comparison with the best international standards (Gabriels & Horn, 2014). While the country has met the UN Broadband Commission's target for broadband affordability (i.e. entry-level broadband – 500MB of mobile data – at a cost of 5% or less of average national income), the price continues to exceed the 5% mark for a great deal of the lower income groups (Alliance for Affordable Internet, 2016). In addition to falling short of the standards of developed countries, South African mobile costs (even for prepaid bundles) are described as generally high even compared to other African countries.

The combination of these and other factors have led to South Africa falling behind in various ICT ratings and indexes. The ITU ICT Development Index (IDI) is one such well recognised global measure, focusing on indicators related to ICT access, skills and use. Once on relatively equal footing with countries such as South Korea, Malaysia and Turkey, South Africa has been outstripped by all of them, ranked at 92nd (of 176 countries) in 2017 (ITU, 2017b). It is also outperformed by several other African countries on the IDI scale and on the Affordability Drivers Index (ADI) where it was rated 15$^{th.}$ out of 21 'emerging countries' in terms of Internet affordability, specifically communications

infrastructure and access (Alliance for Affordable Internet, 2016). A more positive outlook is, however, provided by the World Economic Forum (WEF) Network Readiness Index (NRI) in that the country has improved on its position of 75th in 2015, to 65th of 139 countries in 2016 (World Economic Forum, 2016a). The change was noted as "almost entirely driven by improvements in infrastructure and affordability" (World Economic Forum, 2016a). The sub-indicators in this index offer a useful reflection of the state and impact of ICT in the country: South Africa continues to perform relatively well in its business usage (32nd), but less so in individual usage (77th) and remains poor in government usage coming in at 105th. The social impact of technology in South Africa is, however, highly significant and particularly concerning given the abysmal rating of 112th on the NRI with respect to this indicator.

The overall goal of the country (to be achieved by 2030) was defined by the NDP as "the development of a dynamic information society and knowledge economy that is more inclusive and prosperous" (National Planning Commission, 2011, p. 170). Discourse on ICT and the benefits of its use have generally centred on the notion of an information society. In many circles, however, focus has shifted to the concept of knowledge societies. These expand on existing information societies – which typically emphasise ICT access and infrastructure – to a focus on human capabilities and the capacity of a country to use ICT and wider abilities to derive real social and economic benefits (Gigler, 2015; Huyer & Hafkin, 2007). Prominent early work on the subject, such as that of Mansell and Wehn (1998, p. 12), remains relevant in its consideration of ICT as a tool or a facilitator of knowledge creation in its "potential for combining the information embedded in ICT systems with the creative potential and knowledge embodied in people". Access and use of ICT is thus considered a fundamental component of the knowledge society. While the global expansion of these technologies may be undisputed, the actual impact and developmental benefits – referred to as digital dividends by the World Bank (2016) – is far less certain. This may be attributed to a range of factors, largely discussed under the umbrella term, the digital divide.

2.2.2 Conceptualising a multifaceted digital divide

Advancements in the field of ICT have been accompanied by significant disparities between those capitalising on the wealth of opportunities afforded by these resources and those who are not. This inequality in communicating and processing information digitally has been termed the digital divide (Hilbert, 2011). The divide exists on a global level between developed and developing countries, but also very visibly within countries between upper and lower income groups; lower and higher educated and skilled individuals; affluent and socially excluded or vulnerable groups; groups residing in rural or remote areas and those in urban or core economic centres; and men and women (ITU,

2017b; United Nations, 2014; World Bank, 2016). As such, the digital divide, to some extent, affects most of the world.

Many have advocated that digital inequality rightfully deserves a place amongst the more traditional forms of inequality that impact on life chances, trajectories and positions in society (Hilbert, 2011; Robinson et al., 2015). In support of this, Robinson et al. (2015, p. 571) have argued that "one cannot understand the social landscape of the twenty-first century without coming to grips with digital inequalities". Assessing the digital divide within the context of this modern social landscape may, however, be tricky given the often conflicting existing narratives. On the one hand, we have the popular imagery depicting developed regions – specifically, North America, Europe and East Asia – as brightly illuminated, representing extensive internet connectivity, while Africa and South Asia are painted as bleak and "left behind" in near darkness (World Wide Web Foundation, 2015b). Opposing this is "the myth of ubiquitous ICTs" (World Economic Forum, 2015a), commonly promoted by "technology evangelists" (World Wide Web Foundation, 2015b), proclaiming the saturation of mobile devices in the developing world and praising these tools as the miracles responsible for practically eradicating poverty. Both narratives are misleading. Instead, research has revealed the digital divide to be a highly complex and nuanced phenomenon, which has been continuously reconceptualised over past decades and can be perceived in a myriad of ways (Antonio & Tuffley, 2014; Brotcorne, 2016; Warschauer, 2003).

Those at the disadvantaged end of the divide generally reflect the typically socially excluded, marginalised members of society. These individuals tend to be less educated, older, earn lower income, of an ethnic or indigenous minority and female (Antonio & Tuffley, 2014; De Lanerolle, 2012; Gigler, 2015; Van Dijk, 2013). Social, economic and cultural factors are, therefore, now well recognised as inextricably linked to digital inequalities, as unfavourable positions in these offline contexts tend to reinforce and perpetuate digital exclusion and "specific forms of digital exclusion map onto particular kinds of offline disadvantage" (Robinson et al., 2015, p. 570). Much concern has subsequently been expressed surrounding the potential of technology to reinforce and even exacerbate existing social inequalities rather than ameliorate it, as it provides increasing benefits to those in already advantageous positions, while those who are ultimately most in need are left lagging further behind (Antonio & Tuffley, 2014; Chigona, Beukes, Vally, & Tanner, 2009; Kularski & Moller, 2012; Ono & Zavodny, 2007).

Discussions on the digital divide were traditionally often accompanied by the binary terms, 'haves' and 'have-nots' (Howland, 1998), referring mainly to access and/or ownership of a device. Later there were references to the 'online/connected' and the 'offline/unplugged', which were more

centred on Internet connectivity (DiMaggio & Hargittai, 2001; Pannu & Tomar, 2010; Salman & Rahim, 2012). These labels carry certain connotations, which could easily be misconstrued. To begin with, they are not mutually exclusive but exist on a broad, complex spectrum of relative and gradual differences, making specific classifications of digital in/exclusion difficult (Livingstone & Helsper, 2007; Van Dijk & Hacker, 2000; Warschauer, 2003). While perhaps seemingly minor, these differences are significant given that they have far greater implications for one's position in society than ever before (ITU, 2015; Van Dijk & Hacker, 2000).

Additionally, terms such as 'haves' and 'have-nots' are indicative of the dominant early discourse surrounding the digital divide, i.e. an issue of access. Provision of access to ICT, including computers, mobile devices and the Internet, was once largely considered sufficient or even the sole prerequisite for closing the divide and achieving digital equality (Oyedemi, 2012). Therefore, the increasing digital access in developing regions, particularly since the 'mobile revolution', was viewed by some (particularly the "technology evangelists") as an indication that the digital divide was close to an end. However, this perception is rather naïve in that it tends to ignore significant underlying factors. For example, while it was often boasted that mobile ownership in Africa had surpassed that of Europe and the US, not much was made of the fact that, unlike these developed regions, this was largely due to feature or "dumb" phone penetration. Data collected by the Pew Research Centre in 2014 showed that while the majority of Africans in seven Sub-Saharan countries studied owned mobile phones, only 15% of these were smartphones. Mobile ownership in Nigeria and South Africa was found to equal that of the United States. However, only 27% and 34%, respectively, of the mobile phones were smartphones compared to 64% in the United States. In countries like Uganda and Tanzania rates of smartphone ownership remained in single digit figures (Pew Research Center, 2015a). Furthermore, the ITU reported that only 18% of African households had Internet access in 2017 compared to 84% in Europe, leaving many African Internet users to resort to some form of public access point (ITU, 2017a). While general ICT access may then have increased, differences in the quality and subsequently the range of use and services remain substantial. The ubiquity of mobile phones in South Africa was said to have "not reduced digital exclusion but improved universal access to communications technology to a limited extent" (Lesame, 2013, p. 74).

Over time, it became increasingly recognised that physical access alone (irrespective of the level of sophistication) would not suffice (Salman & Rahim, 2012; Warschauer, 2003). Discussion on the digital divide was gradually reframed to include a focus on the skills necessary to effectively make use of ICT. Many came to consider this an even more pressing concern than material access,

particularly in the context of creating information and knowledge-based societies. Hargittai (2002) provided the following fitting analogy:

> Like education in general, it is not enough to give people a book, we also have to teach them how to read in order to make it useful. Similarly, it is not enough to wire all communities and declare that everyone now has equal access to the Internet. People may have technical access, but they may still continue to lack effective access in that they may not know how to extract information for their needs from the Web.

Aligned with this view, Kularski and Moller (2012) perceived the digital divide to be a combination of gaps in physical access as well as skills, which contribute to one another in an unfortunate cycle: developing digital skills is difficult without access to ICT, while having physical access to ICT is futile without the ability to make effective use of it. The evolving conceptualisation of the digital divide, particularly after the focus on skills, led to increasing reference to a 'second-level digital divide' (Attewell, 2001; Hargittai, 2002).

More recently, discussions have shifted further to an increasing focus on the *use* of ICT. Unfortunately, a substantial amount of research conflated access and use, which is problematic given that they carry distinctly different connotations. Access suggests only the availability of and the opportunity to engage with ICT, whereas use builds on this with a conscious choice to capitalise on this opportunity (Antonio & Tuffley, 2014). While use certainly presumes access, the opposite cannot be assumed. Substantial research has suggested that many people have the opportunity to use ICT, yet choose to refrain from doing so (Antonio & Tuffley, 2014; DiMaggio, Hargittai, Celeste, & Shafer, 2004), while others who had previously been users opt to stop and become 'Internet dropouts' (Katz & Rice, 2002). Use of ICT is also often not well enough defined in research. For example, communication-oriented activities can have very different implications than those aimed at information retrieval; and discussions on diffusion rates of various ICT may at times not take into account that basic usage of a cell phone is often more restricting than a platform such as the Internet offers (Hargittai, 2004). More recently, growing disparities have emerged between those actively participating in the (co)creation, development and contribution of ICT content, services and products (for example, adding or editing online content or adding value to applications while using them) rather than those engaging only in passive usage (Millard, 2015). Usage and skills have been strongly associated with more advanced Internet user skills resulting in a more diverse range of online activity (Hargittai, 2010; Zillien & Hargittai, 2009). As with the previously-mentioned access and skills cycle, skills and usage also likely reinforce one another in this case with more diverse usage likely increasing level of skill (Hargittai, 2010).

The intricacy of usage is particularly observed when considering the gaping differences between those already considered ICT users (Robinson et al., 2015). Differences in type and quality of Internet usage, and in turn the benefits derived from such activity, have been particularly highlighted as a major component of the global digital divide (ITU, 2013). This mention of benefits alludes to the fundamental importance of the focus on use: it is only at this level where actual impacts are evident (Chigona et al., 2009). In light of this, many have advocated against a technology-as-magic-bullet approach, emphasising that it is neither the technology nor the characteristics and skills of the user which result in benefits, but the combination of these in the context of relevant and purposeful usage (Gigler, 2015; Millard, 2015; Selwyn & Facer, 2007). Millard (2015) suggests that it is this transition from the traditional focus on access and skills, to impact and beneficial service usage, which is critical yet lacking in digital divide analyses. To date this shift has been much more evident in developed regions. This is of course not to suggest the elimination of access and skills initiatives, particularly in developing regions where they remain imperative, but rather the integration of these with relevant and beneficial usage avenues.

Conceptualisations of the digital divide have therefore advanced far beyond rudimentary understandings of gaps in computer ownership and basic digital literacy, to the inclusion of a range of other complex factors which influence usage and thereby benefits, including attitudes and psychological motivation, appropriate content and social capital (Bradbrook & Fisher, 2004; Kularski & Moller, 2012; Meyer, Müller, & Kubitschke, 2006; Van Dijk, 2013; Warschauer, 2003). For this reason, a shift in focus has been visible favouring 'digital inequality' and most particularly 'digital inclusion' (used interchangeably with e-inclusion) over the somewhat one-dimensional 'digital divide' (DiMaggio & Hargittai, 2001; Hargittai, 2004; Mariën & Van Audenhove, 2010; Parsons & Hick, 2008; Zillien & Hargittai, 2009). This shift has seen increasing attention to both highly visible but also very slight and subtle variations in digital engagement (Brotcorne, 2016), existing on a continuum (Livingstone & Helsper, 2007) or a rainbow (Clement & Shade, 2000). Such variations ultimately affect and determine the level of "efficient", "meaningful", "empowered" use of ICT – a largely envisaged aim of digital inclusion (Brotcorne, 2016). Exploring such disparities adds new depth to analyses, allowing for more insightful understanding of digital inequality and digital inclusion. In contrast to the rather unsophisticated and less than useful narratives, such as those mentioned at the beginning of this section, this nuanced perspective allows for attention to and tackling of multiple and multifaceted digital divides.

2.3 WOMEN IN SOCIETY

This section provides an overview of the state of women in modern society. It begins by exploring the concept of gender and the implications which this social construct has on females. This is followed by a discussion on recent advances towards gender equality and the urgent need for greater women's empowerment.

2.3.1 The social construct of 'gender'

'Sex' and 'gender' are often mistakenly used interchangeably. While the former refers to the biological characteristics distinguishing men and women, the more complex gender refers to the socially constructed roles, responsibilities and activities attributed to the different sexes, and the relationship between them (Collado, 2013; Fortunati, 2009; George & Barnabas, 2015; McGregor & Bazi, 2001). Gender-specific social norms and values – (conscious and unconscious) agreed-upon rules, practices and expectations – are instilled in boys and girls virtually from birth, are determined by society and are specific to a given culture, time and location (Fortunati, 2009; George & Barnabas, 2015; Prakash, 2012). These social constructs shape our understanding of "what it means to be a 'man' or a 'woman'" (Zevallos, 2011). Traditionally, being a woman carries the expectation of being 'feminine' – sensitive, emotional and nurturing – while the man is expected to be 'masculine' – assertive, unemotional and analytical (Connell, 2002; Kennedy, Wellman, & Klement, 2003; Kimmel, 2000). Those at the forefront of gender discourse, such as the renowned Simone de Beauvoir in her 1949 treatise, 'The Second Sex', have long refuted the popular notion that these differences are innate and natural (de Beauvoir, 1953). Instead these masculine and feminine characteristics are viewed as an internalised and deeply entrenched product of socialisation, forming a significant part of identity. This is reflected in the way we perceive ourselves, present ourselves, wish to be perceived by others, and understand how we fit into society (Zevallos, 2011).

The lower status of women as well as stereotypical gender roles have been fiercely challenged, perhaps most notably since the 1960s and tremendous progress, liberation and gains towards equality have been made in recent decades (Clinton Foundation & Bill and Melinda Gates Foundation, 2015; Cochrane, 2013; Freeman, 1972; UN Women, 2015). The 'new-wave' of non-traditional gender identities including transgender and transsexuality – which tend to shake traditional gender notions – is increasingly more openly discussed or at the very least more commonplace in society. However, the extent of openness, acceptance and general progress differs significantly amongst various strains of society. Social institutions such as the media, the law, education and religion have substantial power in the construction of gender roles (Kennedy et al.,

2003). Even amongst the most progressive cultures, these institutions continue to perpetuate stereotypes which tend to reinforce out-dated and at times damaging gender beliefs for both men and women (Hu, 2015). Specifically for women, adopting and adhering to socially constructed gender norms and values, which often devalue them, has been said to create an inability to recognise and define themselves, and constrain their pursuits of self-growth and fulfilment of their own individual needs and aspirations (Antonio & Tuffley, 2014; Munyua, 2009).

2.3.2 Conceptualising empowerment

The notion of empowerment has become pervasively used to the extent that much diversity currently exists in interpretations (Brotcorne, 2016; Malhotra & Schuler, 2005). General consensus in literature suggests that the concept is fundamentally rooted in the notion of "power", ideally accompanied by a range of necessary (human, social and economic/material) resources (Brotcorne, 2016; Kabeer, 2001; Malhotra & Schuler, 2005; Warschauer, 2003). Some have suggested that two features of the empowerment concept are important in distinguishing it from other frequently associated terms such as gender equality (Kabeer, 2001; Malhotra & Schuler, 2005). The first of these is 'process', referring to processes of change towards greater freedom of choice and equality, or more simply put, increasing the ability to make choices, where such ability was previously denied or limited. The argument has been made that while certain people may be very powerful in their ability to exercise freedom of choice, they are not necessarily empowered given that they were never disempowered in the first place and therefore did not undergo any such process of change (Kabeer, 2001). The second aspect is agency, which is often viewed as the heart and essence of empowerment (Malhotra & Schuler, 2005). It connotes the ability to strategically define one's goals and act upon them to affect important life outcomes (Kabeer, 2001; Malhotra & Schuler, 2005; World Bank, 2014). A combination of agency and resources – the latter understood by Malhotra and Schuler (2005) as enabling factors – result in what Sen (1985) referred to as capabilities. A widely accepted definition of empowerment, encompassing each of these factors is "the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them" (Kabeer, 2001, p. 19).

2.3.3 The argument for women's empowerment

Women have long been identified as a disempowered group, lacking voice and agency (World Bank, 2014). "Across the globe every day, women and girls experience some form of discrimination solely because they were born female. Throughout the course of their lives, they will encounter different types of discrimination that will affect their ability to access justice, to pursue their life choices and to

fully benefit from opportunities for empowerment" (OECD, 2014, p. 6). Great strides have been made within the past few decades, particularly following the historical United Nations (UN) Fourth World Conference on Women in Beijing in 1995, which saw delegates from 189 nations convene with the sole objective of advancing gender equality. This crucial concept of equality between men and women:

> … refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration − recognizing the diversity of different groups of women and men. Gender equality is not a 'women's issue' but should concern and fully engage men as well as women. Equality between women and men is seen both as a human rights issue and as a precondition for, and indicator of, sustainable people-centred development (OSAGI, 2001, p. 1).

The ambitious and comprehensive plan pledged to by the attendees, dedicated to realising the full and equal participation of women in society, covered 12 areas including education, health, the economy, violence and human rights (United Nations, 1995). The joint declaration that "women's rights are human rights, and human rights are women's rights" (Clinton Foundation & Bill and Melinda Gates Foundation, 2015, p. 1) reflected the movement towards the empowerment of women in many spheres of society.

While great progress has been made in certain areas, many women around the world remain largely untouched by gender equality developments (World Economic Forum, 2016b). Restrictive social norms and cultural practices limit women's mobility, opportunities and amplify time-poverty (African Development Bank, 2015; Hilbert, 2011; OECD, 2014; Van der Weide, 2012); gender-based physical and/or sexual violence is rampant affecting over 700 million women around the world (World Bank, 2014); gross violations like female genital mutilation continue in 26 countries (OECD, 2014); women continue to be underrepresented in the formal labour market and earn less than men (African Development Bank, 2015; International Labour Organisation, 2017; World Economic Forum, 2017); girls continue to be forced into early (or child) marriage exacerbating maternal mortality rates, with females having limited control over their sexual and reproductive rights (World Bank, 2014); women face greater discrimination in property ownership and inheritance (African Development Bank, 2015; OECD, 2014; World Bank, 2014); girls are still most likely to be denied education (UNESCO Institute for Statistics, 2016) and; women are still underrepresented in politics and positions of power (World Bank, 2014).

Advancing women's empowerment and expanding agency is thus a universal challenge (World Bank, 2014). Progress in this area would not only profoundly affect women at an individual level (via greater social and economic benefits and improved quality of life), but also yield broader development dividends for their families, communities, countries and society at large (World Bank, 2014). The African Development Bank (2015) has claimed that achieving gender equality and women's empowerment could increase the productive potential of as much as one billion Africans, thereby resulting in massive growth and development for the continent as a whole. Conversely, constraining women's agency can result in huge losses to productivity and have broad adverse repercussions for development (World Bank, 2014). This adds to a bulk of substantial evidence linking women's empowerment and gender equality with national growth and poverty reduction (Broadband Commission, 2013; Creighton, del Mar Gutierrez, & Agi, n.d.; Huyer & Hafkin, 2007; International Labour Organisation, 2017; World Bank, 2014).

2.4 RELEVANCE OF ICT FOR WOMEN

Given the main threads underlying contemporary digital inclusion discourse, it would appear that the rationale and overarching objective lies in its potential for empowerment (Asiedu, 2012b; Brotcorne, 2016). ICT is considered to play a crucial role as an enabler in this process in modern society and therefore holds particular importance for women as a traditionally disempowered group. This can be inferred by the statement of a rural Indian woman in the research of Balasubramanian, Thamizoli, Umar and Kanwar (2010, p. 204): "Mobile phones have become a symbolic representation of our transition from dependency on males to self-dependency." Whereas the notion of gender equality – an important objective of digital inclusion – is often discussed in terms of equal access and opportunities to engage with ICT, the empowerment of women also entails freedom of choice and the agency to make use of such resources to make their own strategic decisions (Kabeer, 2001; Millennium Project Task Force on Education and Gender Equality, 2005). Such a shift is critical today given that ultimately, "empowered women have the potential to transform their societies" (Gates, 2014, p. 1273).

Such discourse has all too often led to the assumption that women's use of ICT will be unquestionably empowering. This stance is problematic in that it largely ignores the tendency of technology to fit into existing social structures and its potential to reflect and reproduce offline power relations, reinforcing gender inequality (Gurumurthy & Chami, 2014; Han, 2012; Melhem, Morrell, & Tandon, 2009; Radloff & Moolman, 2013; Wajcman, 2007, 2010).

The very same digital tools used by women on a day-to-day basis to meet practical needs are often controlled by men and present a significant source of conflict, flaring up gender-related tension (Antonio & Tuffley, 2014; Handapangoda & Kumara, 2013; Kyomuhendo & Kabonesa, 2006; Wakunuma, 2007). The World Bank (2016) noted how a seemingly highly beneficial use of technology, such that which enables women to be employed in home-based work, could be perpetuating restrictive social norms and beliefs that the woman's place and duties are in the home. In this sense, it could be questioned whether technology is truly empowering women and challenging existing gender inequality, or merely playing into and (to some extent) concealing it, thereby delaying fundamental reforms (World Bank, 2016). ICT has also been used to portray female sexuality in a negative light with the intention of de-legitimising and denigrating women (Radloff & Moolman, 2013). Stereotypical gender norms in the offline world are commonly transferred to online environments. In these digital spaces, females are often portrayed as more passive, somehow less competent and are assigned the traditional roles of wives and mothers or 'damsels in distress' (Brimacombe & Skuse, 2013; Gorski, 2001; Robinson et al., 2015). These stereotypes are often presented in exaggerated forms. For example, Gorski (2001) pointed out that when women are cast as strong, independent and heroic characters in video games, they are often depicted in the form of unrealistic body shapes and revealing attire, thereby perpetuating the objectification of women.

Such phenomena support the notion that ICT has allowed for an additional form of oppression of women by men. In this sense, technology may be aptly described as a double-edged sword (APC, 2010; Melhem et al., 2009; World Bank, 2014), which Wajcman (2010, p. 148) has argued "is neither inherently patriarchal nor unambiguously liberating", but rather holds the potential for both struggle and opportunity (Radloff & Moolman, 2013). The 'opportunity' aspect can, of course, not be discounted and ICT certainly holds a great deal of potential for benefit and empowerment of women in a range of areas, discussed below.

2.4.1 Access to information and services

A key aspect of ICT for women, which spans across a wide range of life areas and has far-reaching practical benefits, is the exponentially increased access to information. This feeds into broader educational and economic benefits by providing relevant information to potentially prosper both personally and professionally. Information once out of reach for many is now easily accessible, including international news and current affairs (Zainudeen & Galpaya, 2015) and much needed general, sexual and reproductive health information (Handapangoda & Kumara, 2013; Prakash, 2012) – particularly pertinent for females as the typical primary caregivers and their roles in vital societal issues like maternal mortality (EngageSPARK, 2013). In addition to information, ICT allows for new

access to services, traditionally out of reach for many, including financial services (via online banking and mobile money applications), cost-effective healthcare (connecting with medical and dispensary centres, family planning agencies and midwives), engagement with government, administrative and political authorities, as well as faster connection and access to security and emergency services (Handapangoda & Kumara, 2013; Hilbert, 2011; Masika & Bailur, 2015; Munyua, 2009; World Bank, 2013). The ease of these activities via mobile devices and the Internet is highly valued due to the time and money saved (Chigona et al., 2009; Handapangoda & Kumara, 2013; Macueve, Mandlate, Ginger, Gaster, & Macome, 2009), both of which are often in short supply to women in developing countries. Such benefits are particularly important for women in that they allow them to carry out seemingly minor and routine daily activities more efficiently and thus provide solutions for very practical needs. Qualitative research in South Africa revealed mothers using smartphones to adapt parenting techniques in ways such as finding suitable health information to discuss with a teenager or using online services to access an infant's health record (Deen-Swarray et al., 2013).

2.4.2 Economic opportunities

ICT has provided much opportunity for economic growth for women, exposing them to a far wider range of employment and income boosting opportunities (Antonio & Tuffley, 2014; Hilbert, 2011; ITU, 2015). This potential to advance women economically has been described by some as perhaps "the most exciting transformative feature of technology" (Gill, Brooks, McDougall, Patel, & Kes, 2010, p. 1), not least of which is due to its imperative role in the reduction of poverty (Gill et al., 2010). The hope, then, is that once supported by technologies women are able to improve efficiency, productivity and quality of work in their existing positions or find and create new employment and entrepreneurial opportunities (Ponge, 2016).

Digital technologies have provided innovative avenues for financial gain via e-business channels and online transactions (Hilbert, 2011; Next Generation, 2016; Zainudeen & Galpaya, 2015). A highly significant aspect of ICT for women in particular, is the new-found flexibility of the working environment. This has proved invaluable for home-based women and those struggling with the balance of family and career, allowing them greater freedom to conduct business away from the traditional office space and control over their own working hours (Antonio & Tuffley, 2014; Munyua, 2009). At the opposite end, women at work are better able to manage and control their households from a distance (Macueve et al., 2009). Therefore, technology allows women to more efficiently manage dual responsibility (Munyua, 2009). In reporting survey findings, the World Bank (2016) identified this new-found flexibility made possible by the online platform, as being even more highly valued (particularly amongst women) than additional income earned. Women have also been able to

capitalise on technologies like smartphones, evident in Kenyan findings where 40% reported an increase in number of hours worked; 48% an increase in the number of jobs they performed; 56% an increase in number of business contacts; and 63% enjoyed greater income – all specifically attributed to the use of a smartphone (Cowell, 2016). ICT allows for improved access to markets to buy and sell goods; enables greater contact (with suppliers and clients), cutting out the time and costs spent on travel; allows for access to a wide range of pertinent information related to various areas of their business functioning leading to increased productivity and higher income; and allows for reorganising and adapting traditional ways of conducting economic activities which can often lead to eliminating the 'middle-men' and the traditional dependence of women on typically male-dominated and exploitative systems (Abraham, 2007; Broadband Commission, 2013; Jiyane & Mostert, 2010; LirneAsia, 2012; Macueve et al., 2009; Ponge, 2016).

Building on the "already-acknowledged positions" that women are more successful and dependable in the management of microfinance for micro-enterprises and that ICT can greatly increase the success and wellbeing of such enterprises, De Silva, Pulasinghe and Panditha (2012) have suggested that the use of such technologies for business purposes would be most helpful to female-headed households. The underlying assumption here is that:

> … a woman heading a household is not very different to a woman running a micro-enterprise; in that unlike a woman who is not heading a household a woman heading a household has much more financial responsibility in ensuring the sustenance of that household just as in the case of a micro-enterprise (De Silva et al., 2012, p. 8).

If women-headed households are in fact typically significantly different (and worse off) to that of men in terms of both economic status and ICT usage (De Silva et al., 2012) – as is reportedly the case in South Africa as well (Ministry in the Presidency responsible for Women, 2015) – the argument could be made that increased ICT usage would be most beneficial to such households.

2.4.3 Educational opportunities

ICT has largely been discussed in terms of new and increased opportunities for education. The underlying hope is that this will ultimately contribute to employment and economic growth in addition to enlightenment and better quality of life. Mobile devices and the Internet offer huge potential benefits for women, both in terms of the abundance of educational material available, as well as information on potential learning opportunities, online (LirneAsia, 2012). For the many women and girls for whom it is difficult, or even impossible, to physically attend educational institutions, ICT offers the opportunity to do a wide range of free online courses and software-based literacy programs, in addition to a plethora of general reading material and mobile books (Antonio &

Tuffley, 2014; Hilbert, 2011; UNESCO, 2014). Mobile phones have assisted in developing language ability (Zainudeen & Galpaya, 2015) and advancing numeracy skills, at least to some extent via dialling and thereby recognising and learning numbers (Macueve et al., 2009). In certain cases, mobile phones have been more of an indirect catalyst in making education possible: the comfort of knowing that females were constantly reachable was a large factor in making it possible for them to leave their homes to attend classes (LirneAsia, 2012).

2.4.4 Social capital

Findings from many studies have reported the ease of communication and connection with friends, family and social ties – both near and far – to be either one of, or the sole benefit of mobile devices for women (Cowell, 2016; GSMA et al., 2010; GSMA Connected Women, 2018; Handapangoda & Kumara, 2013; LirneAsia, 2012; Macueve et al., 2009; Masika & Bailur, 2015; Munyua, 2009; Scott, 2017; Zainudeen & Galpaya, 2015). For some women, the emotional support it provides has had an effect that has been described as nothing short of transformational. Handapangoda and Kumara (2013) have described how women are now able to connect in difficult times without infringement of privacy and without being constrained by landline communication. In other regions where women are often separated from their families after marriage or due to work and practise 'remote mothering', the ease of maintaining contact via mobile devices is invaluable (Lim, 2014; LirneAsia, 2012; Masika & Bailur, 2015). The role of ICT is particularly relevant in helping to maintain and develop social capital, which is especially vital in developing countries and among urban poor communities. As Woolcock (2005, p. 12) stated:

> The urban poor … rely heavily on their friends and relatives to help them both 'get by' and 'get ahead.' Faced with institutions, policies, and services that are frequently hostile, inadequate, or indifferent to their concerns, the urban poor have little choice but to valiantly deploy a range of coping strategies, chief among them the use of their social networks, to provide everything from credit and physical security to information about housing and employment opportunities.

In addition to increasing communication with existing contacts, ICT allows women to expand their connections beyond their immediate social and community networks (Arnold et al., 2012; Zainudeen & Galpaya, 2015). This enables women to find new avenues of support, new perspectives and new points of reference, which may challenge constraining social norms (Cowell, 2016; Intel, 2012). Women often face greater challenges in terms of freedom of mobility and are more restricted in the time and opportunities they have to maintain and develop social networks (given that many are largely confined to the home and have high domestic workloads). Mobile devices provide a form of liberation, which was to a great extent previously impossible (Handapangoda & Kumara, 2013).

While important in its own right, social functions and applications of ICT may also be a useful entry point to other forms of digital activity (World Wide Web Foundation, 2015b).

2.4.5 Mobilisation, voice and expression

The UN Fourth World Conference on Women in Beijing 1995 was recognised as "a watershed in realising the power of information tech as a tool for women's mobilization, info exchange and empowerment" (Prakash, 2012, p. 18). Since then, one of the most commended benefits of ICT for women has been that it provides them with a previously unimagined platform to express and amplify their voices and opinions, claim and demand their rights, participate in public discussion and engage in decision-making processes on issues which affect them and their communities (Broadband Commission, 2013; Intel, 2012; Macueve et al., 2009; Wilson & Lawan, 2015; World Bank, 2016; World Wide Web Foundation, 2015a, 2015b). Agency and self-confidence of women to engage on digital channels is more imperative than ever given the increasingly intertwined nature of ICT in important areas such as education, healthcare, government and financial services (Broadband Commission, 2013).

Self-expression and exchange of information via avenues like social media have had a significant impact in many cases. Such platforms enable women to communicate with people beyond their usual circles and geographical locations, and to broaden their understanding of the world and their position in it. When such critical reflection and new perspectives develop, women are enabled to see the possibilities and opportunities that are open to them (Antonio & Tuffley, 2014). In Iran where females are expected to wear a hijab, a woman expressed her dissatisfaction and frustration by posting a scarf-less picture of herself on Facebook. She not only drew the support of over 230 000 people, but also focused public attention on the growing opposition to their government's stance on the issue (Antonio & Tuffley, 2014). In Kenya, the "My Dress, My Choice" social media movement mobilised thousands to protest against violence against women, which ultimately led to a change in the relevant laws (World Bank, 2016). The power of technology in mobilising women was evidently also recognised by M23 rebels when they took the city of Goma in the Democratic Republic of Congo and immediately cut communication channels (Radloff & Moolman, 2013). SMS services and media programmes to reach women most at risk were shut down. The fact that digitally disconnecting these women was considered the obvious means to silence and disempower them can be interpreted as a recognition of the power such technologies hold for transferring pertinent information and mobilising women.

Finally, the ability of the Internet to give voice to particularly marginalised women has been included in discussions of identity. Women, as well as other (typically minority) groups often silenced, have been given the power to speak, represent and define themselves (Radloff & Moolman, 2013; Sanya, 2013; Tagnay & Kee, 2013). Websites for transgender groups, for example, make it possible to share stories and struggles and have relevant discussions on topics like unlearning dominant gender norms (Tagnay & Kee, 2013); "For marginalised groups who have access, it gives us the possibilities to construct, deconstruct and reconfigure our own identities and the structures within which they live" (Radloff & Moolman, 2013, p. 96).

2.5 THE DIGITAL GENDER DIVIDE

This section provides an in-depth nuanced conceptualisation of the 'digital gender divide'. This is followed by an overview of the main trends related to the patterns of ICT access and usage of women, contrasted with that of men.

2.5.1 Conceptualising the 'digital gender divide'

Initially, the introduction of new technology for development purposes, did not include women as part of the intended target group (Asiedu, 2012a). A fitting example of this was the launch of agricultural technology in Africa in the 1960s and 1970s which largely ignored the role of women and the indigenous knowledge they contributed to this industry (Boserup, 1970). This was despite the fact that nearly 80% of the farmers in sub-Saharan Africa were women (Asiedu, 2012a). With regard to ICT specifically, there was more openness to the inclusion of women in the provision of access. However, the underlying assumption was that these tools were gender neutral and functioned independent of socio-cultural inequalities (Lerner, 1958; Rogers, 1962). By the 1970s these perceptions were being considered more critically. Some, such as Boserup (1970), argued that these new technologies were not at all gender neutral, were typically dominated by men and contained gendered inequalities within their very structure.

Regardless of the greater prevalence of these more nuanced perspectives, much of the discourse continued to portray technology as inherently masculine, a male domain or "toys for the boys" (Hilbert, 2011). Women, on the other hand, were ascribed a certain level of technophobia and computer anxiety (Badagliacco, 1990; Broos, 2005; Durndell & Haag, 2002; Faulkner, 2001; O'Brien, 2008). Fallows (2005) also noted how conclusions were often drawn which considered men to be more tech-savvy and women less interested in ICT. This correlates with the essentialist theory, which

"assumes the existence of pertinent intrinsic distinctions between women and men with respect to information technology" (Satapathy, 2014, p. 153).

More recently, there has been a growing acceptance of the theoretical perspective perceiving technology and gender as socially constructed and therefore fluid, dynamic and highly dependent on the social contexts in which they occur, rather than consisting of inherent properties (Geldof, 2011; Satapathy, 2014). To illustrate this, Kennedy et al. (2003) reflected on the 1940s when women were highly involved with information processing systems and computer programming was regarded as an extension of the clerical work assigned to them in the army. As technology became perceived as more valuable and gained higher status and the skills involved were considered more complex, it was socially reconstructed as largely a male domain. Kennedy et al. (2003) noted how activities with more power and status attached to them are often classified as 'masculine' rather than 'feminine'. The understanding of the female identity became "essentially incompatible" with that of information technology (Satapathy, 2014). This redefining of concepts according to the existing social and cultural context, would then indicate that "there is nothing natural about women's lack of technical skills; there is nothing inherently masculine about technology" (Obreja, 2009, p. 2).

However, stereotypes continue to prevail. Cheryan, Master and Meltzoff (2015) discuss how ICT related careers tend to have a "genius" connotation. These careers, along with the science, technology, engineering and mathematics (STEM) subjects which typically precede them, are perceived as being less compatible with qualities typically valued in women (i.e. femininity, people-oriented and modesty in abilities) (Cheryan et al., 2015; Federal Ministry for Economic Cooperation and Development, 2017). Girls often lack a sense of belonging in the field and are less likely to pursue these professions (OECD, 2018). Such perceptions are also related to the tendency of girls to underestimate their digital skills (Hargittai & Shafer, 2006), potentially leading to lower self-efficacy, less motivation to use ICT and negative attitudes towards the use of technology (FreshMinds, 2008; OECD, 2018).

Additionally, the roles and tasks associated with the feminine identity are often the cause of their lower engagement with ICT "out of a sense of pragmatism, that is, out of their need to deal with a multitude of tasks, meet a variety of demands and play diverse roles with limited time" (Ibrahim & Adamu, 2016, p. 177). For many women, the need to fulfil a wide range of pressing responsibilities leaves little time to interact and experiment with ICT simply out of interest (Ibrahim & Adamu, 2016; Rathgeber, 1995). Given all of this, it is imperative that gender differences in technological use are considered within the context of systemic cultural, social and economic inequalities between men and women (Hilbert, 2011; Roux & Dalvit, 2014).

The digital gender gap is therefore largely a product of existing inequality within society, which places women at a disadvantage regarding the access and use of technology (Buskens & Webb, 2014; Hafkin & Huyer, 2007; Hilbert, 2011). Recent years have seen a steady growth in the recognition of the magnitude and significance of digital gender divides, and the need to address such disparities to promote women's equality and thus benefit society at large. The 1995 UN Fourth World Conference on Women resulting in the "Beijing Declaration", together with the "Platform for Action" is credited as a critical movement towards declaring gender equality as a global priority. It is perceived as a step in paving the way towards the rejection of technology as inherently gender-neutral, and the positioning of women and ICT as a critical component of the international agenda (Brimacombe & Skuse, 2013; The United Nations, 1995). This was reaffirmed and solidified at the monumental WSIS in 2003:

> We affirm that development of ICTs provides enormous opportunities for women, who should be an integral part of, and key actors, in the Information Society. We are committed to ensuring that the Information Society enables women's empowerment and their full participation on the basis of equality in all spheres of society and in all decisionmaking processes. To this end, we should mainstream a gender equality perspective and use ICTs as a tool to that end (WSIS, 2003, para. 12).

Following this, the issue of the digital gender divide received more attention than ever before. It was recently included in the UN's Sustainable Development Goals (SDGs) as a call to "enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women" (United Nations, 2015, p. 18). The primary issues within the digital gender divide, requiring close examination, have been identified as the access and use of ICT by men and women. This will be addressed in the following section.

2.5.2 The digital gender divide: Access

As with the broader digital divide, discussion surrounding the digital gender divide has also typically centred on the issue of access, specifically the differences in access to ICT between men and women (Asiedu, 2012a; Broadband Commission, 2013; Gorski, 2001; Huyer, Hafkin, Ertl, & Dryburgh, 2005). Popular discourse often appeared to associate the closing of the gender gap and the empowerment of women via ICT, purely with the provision of access to technologies (Asiedu, 2012a). The disparities in access that were observed decades ago in the developed world during early stages of technology adoption were said to have declined dramatically in these regions in early parts of the twenty-first century (Fallows, 2005; Gorski, 2001; Hilbert, 2011; Ono & Zavodny, 2003; Wasserman & Richmond-Abbott, 2005). The increased presence of women online led many to the conclusion that equality had been achieved, that a digital gender divide was no longer an issue (Gorski, 2001) and that "there

[was] little reason for concern about sex inequalities in Internet access and usage now" (Ono & Zavodny, 2003, p. 111).

Evidence relating to developing regions, however, indicates that such a statement may have been premature. A 2018 report by the GSMA which focused on mobile phone ownership specifically in low and middle income countries showed that while the gender divide had decreased in recent years, a 10% average difference between men and women remained – i.e. 184 million fewer female mobile phone owners than males (GSMA Connected Women, 2018). This trend extends to different regions globally and has been reported by various studies in Sub-Saharan Africa and South and South-East Asia (GSMA Connected Women, 2018; Pew Research Center, 2015a; Sylvester, 2016; Zainudeen & Galpaya, 2015). The After Access survey findings also supported this trend, revealing higher levels of mobile ownership by men in nearly all of the 16 Asian, African and Latin American countries surveyed (LirneAsia & Research ICT Africa, 2017). South Africa was an exception with very slightly higher mobile ownership by women (85%) than men (83%).

Exploration into more detailed aspects of mobile ownership also indicated that females typically spent less money on mobile services (significantly less in South Africa) (Deen-Swarray et al., 2013), were less likely to pay for these services themselves (Blumenstock & Eagle, 2010; GSMA et al., 2010; GSMA, 2015), and were also less likely to have purchased their own devices and enjoyed less decision-making power in the type of phone purchased (GSMA, 2015; Sylvester, 2016; Zainudeen & Galpaya, 2015). Sylvester (2016) reported that housewives generally sought out the advice of their husbands before purchasing a mobile phone, whereas the husbands typically decided without consulting their spouses. There were also far more female borrowers of devices and they were more likely to be in a position of having shared access to a mobile phone, which remains a common form of access in many developing countries (Blumenstock & Eagle, 2010; GSMA, 2015). However, whether a phone is shared or not, perceptions of these devices are generally that they are 'personal' and not 'family' or 'common-property' (Sylvester, 2016). Other gender disparities were also found in aspects such as the first point of engagement, where females are often afforded the opportunity to engage with ICT at a later stage than males. Evaluation of an ICT project targeting children in Ghana found that all but one of the boys interviewed had interacted with a computer and the Internet prior to the project's implementation, whereas the far majority of girls had, had no such experience (Steeves & Kwami, 2017). The same gender disparity was found amongst university students in Khartoum where most female students' first engagement with a computer and the Internet occurred only once at university, while males had already had some degree of use long before enrolling

(Mubarak, 2014). On average, South African males were reported as having two years more exposure to the Internet than females (LirneAsia & Research ICT Africa, 2017).

Such factors are of course highly relevant to the issue of access as they typically impact on the level of control over frequency, intensity and type use of ICT. The extent of engagement is also highly dependent on the capacity of the device: the gender gap is even more noticeable in ownership of higher-end mobile phones, with females generally less likely to possess devices which are Internet enabled (Broadband Commission, 2013; Deen-Swarray et al., 2013; LirneAsia & Research ICT Africa, 2017; Pew Research Center, 2015a; UNESCO, 2014). GSMA (2018) reported that overall, women were 26% less likely to own a smartphone, totalling roughly 327 million fewer women than men with mobile Internet access. The gap is most pronounced in South Asia – 70% less women than men with smartphones – and Sub-Saharan Africa with 34% less women than men. The South African situation, as reported by LirneAsia and Research ICT Africa (2017), is especially noteworthy in that while women had been identified as having higher levels of mobile ownership overall (as earlier reported), they were significantly outnumbered by men in the ownership of Internet enabled mobile phones. Gender gaps in access to the Internet have thus become a particularly prominent area of concern in developing regions. The World Bank (with supporting evidence from prior RIA studies) reported that in the period 2011 to 2012 women in Africa were 50% less likely than men to access and use the Internet and also had less control over these decisions (World Bank, 2016). According to Intel, around the same time period, 23% fewer women than men across 144 countries of the developing world had access to the Internet and this gap soared to nearly 45% in regions like Sub-Saharan Africa (Intel, 2012).

Resolving these issues of disparities in access to ICT between men and women has often been accompanied by the assumption that this is a matter which will naturally resolve itself when general ICT penetration within a country increases. This is largely based on evidence indicating that digital divides are greater where ICTs are newer, more sophisticated and have lower levels of penetration, and that these gaps gradually decrease as the technologies become more common and integrated into society (Huyer et al., 2005). The findings of Porter et al. (2012) in a study focused on South Africa, Malawi and Ghana, appear to be in line with this pattern, in that girls in overall low technological use settlements were less active users compared to boys, yet more active than boys in higher use settlements. If such a theory of increased digital gender equality following increased overall technological uptake were true on a broad scale, the expectation would be that countries with higher Infostates display smaller gender gaps than those with lower Infostates. Huyer et al. (2005) have reflected on the implications such a relationship would have on policy and the

approaches of strategies focused on reducing digital gender gaps. They noted that this would largely negate arguments by reputable bodies that digital gender divides need to be addressed with informed gender-focused strategies.

Huyer et al. (2005) undertook to explore this relationship between the digital gender divide and the broader digital divide. Their findings revealed significant variation in the extent of the gender gap and level of Internet penetration between countries. Examples illustrated included the case of the Netherlands in comparison with Brazil, Mexico, Tunisia and Zimbabwe. While each of these countries had 40% female Internet users, overall Internet diffusion in the Netherlands approached 60% while penetration rates in Mexico and Brazil were less than 5% and basically non-existent at the time in Zimbabwe. The same unpredictability was found amongst other countries as well. This was later corroborated by the research of Zainudeen, Iqbal and Samarajiva (2010). They examined Internet penetration levels in relation to gender gaps by comparing bottom of the pyramid (BOP) countries with middle and upper level income regions. For the most part, the digital gender divides persisted regardless of level of Internet penetration or the country's economic status. This was thought to be the result of larger cultural factors (Zainudeen et al., 2010). The Arab States may be another example where such cultural factors have a substantial influence, considering that there tends to be both high national Internet penetration and yet high digital gender inequality (Broadband Commission, 2013). It was therefore concluded that "the relationship between the gender divide and the overall digital divide is very tenuous and does not support the argument that the two move in tandem" (Huyer et al., 2005, p. 145). Relying on eventual increased access and penetration levels in a country to automatically close digital gender divides, would therefore be an error and one which society can no longer afford (Antonio & Tuffley, 2014; Melhem et al., 2009). Evidence shows existing disparities in usage, even where opportunities for access for men and women exist, which supports the notion that access does not automatically translate into usage (Helsper & Reisdorf, 2016; Mubarak, 2014; Ono & Zavodny, 2007). Policy or interventions focused on general increased access alone without consideration for the other gender-related aspects of usage may in fact serve to exacerbate the gender divide (Gillwald, 2018; Melhem et al., 2009). At this point, it may be concluded that access is insufficient to obtain digital gender equality and additional factors related to the specifics of usage are imperative.

2.5.3 The digital gender divide: Usage

Recognition of access alone as insufficient in closing the digital gender divide has led to a gradual shift in focus to disparities in usage between men and women, which have proven to be persistent particularly as the sophistication of the technology and activity increases (Broadband Commission,

2013; Collado, 2013; Hilbert, 2011; Huyer et al., 2005; Robinson et al., 2015). Even where ICT penetration and adoption levels are high, inequalities in actual use often exist and have great impact on social and economic development and participation in the Information society (Huyer et al., 2005; Robinson et al., 2015).

At times, discussions on gendered differences in usage tend to report on men and women as uniform groups. In reality, neither males nor females behave as monolithic groups (Huyer et al., 2005) and "there is no 'average' female Internet user, not even in developing countries" (Intel, 2012, p. 68). Given popular stereotypical assumptions it is perhaps also necessary to refute any notion of there being a generic African woman or man (Kwami, 2015). Variations amongst females of different demographic groups are often more significant than between men and women of the same background. Intel (2012), for example, reported that homemakers tend to be relatively conservative in their range of Internet uses, younger women tend to be more intensely involved in social networking and middle and upper class professional women are more inclined to use multiple platforms. Nevertheless, various studies have produced certain pertinent findings in terms of differences in the way men and women use ICT: compared to men, women have been reported to demonstrate lower frequency and intensity of use and engage in a narrower range of activities online (Cowell, 2016; Gray, Gainous, & Wagner, 2016; GSMA, 2015; Haight, Quan-Haase, & Corbett, 2014; Hargittai, 2010; Huyer et al., 2005; Joiner et al., 2012; Kennedy et al., 2003; Li & Kirkup, 2007; Ono & Zavodny, 2003; Soh, Teh, Hong, Ong, & Charlton, 2013; Wasserman & Richmond-Abbott, 2005).

Research conducted in developing countries has indicated that women are more likely to use older ICT than men and are less engaged with computers and the Internet (Rashid, 2016). Furthermore, findings suggest that women also tend to use devices for less sophisticated purposes than men (Deen-Swarray et al., 2013) and (as far as mobile phones are concerned) are often more limited to SMS and voice services (GSMA, 2015; World Wide Web Foundation, 2015b). In a South African study on female hawkers and vendors, all participants used their mobile devices to make and receive calls for personal as well as business purposes, but none of the 42 women advanced beyond this point to capitalise on the device's potential to provide relevant business-related information (Jiyane & Mostert, 2010). Relatively similar findings were reported amongst female traders in the informal Ghanaian market, where top-down efforts to introduce a range of seemingly relevant and appropriate mobile applications were largely unsuccessful (Kwami, 2015).

Gender gaps seemingly exist even within the use of more basic services. Such disparities have been identified: in SMS usage, where studies found that the percentage of male users outstrips that of women (GSMA Connected Women, 2018; GSMA, 2015; Sylvester, 2016); in voice activity, women

received more calls, while men made more calls (Blumenstock & Eagle, 2010; GSMA, 2015), the duration of calls was longer for women (Blumenstock & Eagle, 2010; Zainudeen et al., 2010), and men and women appeared to be most active in phone calls at different times of the day (GSMA, 2015). Sylvester (2016) found such disparities in the frequency of basic mobile and landline usage – lower for women – even when comparing urban females with rural males. Contradictory findings do, however, exist. For example, in research conducted in Myanmar no significant gender differences were found in SMS and voice call practices (Zainudeen & Galpaya, 2015). Such contradiction was also evident in comparing quantitative and qualitative research (within a single study) where findings using quantitative methods indicated that females were more prone to use basic and men more advanced services, while qualitative methods suggested that the reverse may be true (Deen-Swarray et al., 2013).

There is, however, little debate as to a gender difference in Internet usage. In 2017, the proportion of male Internet users was higher than that of females in two-thirds of countries around the world, equating to a 12% global gender gap (ITU, 2017a). This disparity is most pronounced in developing countries and particularly disconcerting in Africa as the only continent where the gap is in fact widening (from 21% more male than female Internet users in 2013, to 25% in 2017) (ITU, 2017a). Findings from a range of prominent studies around the world continue to report fewer female than male Internet users (GSMA Connected Women, 2018; GSMA, 2015; LirneAsia & Research ICT Africa, 2017; World Internet Project, 2013; World Wide Web Foundation, 2015b). With specific reference to mobile Internet usage, GSMA Connected Women (2018) reported that women in low and middle-income countries who own smartphones are 18% less likely than men to use the Internet via this device. Even amongst existing Internet users, women have been reported to connect less frequently (Bujala, 2012; Fallows, 2005; Rashid, 2016) and also spend shorter periods online (World Internet Project, 2009).

When delving further into specific types of Internet activity, much research has concluded that online behaviour should not be viewed as separate from offline behaviour and that Internet use by men and women reflect and must be situated within broader gendered practices and trends in society (Collado, 2013; Colley & Maltby, 2008; Geldof, 2011; Kennedy et al., 2003; Kennedy, 2011; Soh et al., 2013). Offline activities guided by socially expected gender roles are transferred into virtual space (Collado, 2013; Kennedy et al., 2003; Kennedy, 2011; Robinson et al., 2015), which would suggest that ICT is merely the enabler for existing gendered needs and activities to be carried out (Sylvester, 2016). In this respect, “gender differences in online behavior will continue for as long as they exist more generally” (Colley & Maltby, 2008, p. 2012).

Many studies have attempted to identify such online differences of males and females with more accuracy. One of the widely discussed categories of gendered ICT usage relates to entertainment and leisure-oriented activities. Findings have repeatedly indicated that men participate significantly more often in such activities and make more use of most actual applications of technology including games, music, movies and video-sharing sites, sports, hobby sites, and searching for humorous content (Bujala, 2012; Collado, 2013; Cowell, 2016; Hilbert, 2011; Intel, 2012; Joiner et al., 2005, 2012; Kennedy et al., 2003; Li & Kirkup, 2007; OECD, 2007; Tondeur, Van de Velde, Vermeersch, Van de Putte, & Van Houtte, 2016). In reflecting on the substantial amount of literature reporting this trend, Soh et al. (2013) described their own findings, indicating equal motivations by male and female adolescents to use the Internet for entertainment purposes, as "surprising". They proposed that the entertainment value girls are seeking may be derived from the social networking activities they frequently engage in. This alludes to the effect of inconsistency between studies in their measurement instruments and classification of online activities: an investigation which included social networking and texting under an 'entertainment' category may have different interpretation of results from one which restricted 'entertainment' to music, video content and gaming. The research findings of Zainudeen and Galpaya (2015) who considered mobile entertainment primarily in relation to music and gaming was thus interesting in that both men and women alike enjoyed this activity. This was particularly the case in rural areas, where facilities and other recreational options are limited. Overall though, the consensus appears to be that men generally tend to use the Internet for their own personal (typically leisure-related) interests more than women.

The entertainment orientation of usage, where men are said to largely dominate, has often been contrasted with information seeking activity, where a number of studies have described females to be strongly represented. However, somewhat conflicting findings have been reported. Kennedy et al. (2003) are amongst those who have reported that women spend less time accessing digital information than men – according to them, an average of 40 days fewer per year. These findings, published in 2003, are of course dated and momentous growth in ICT penetration has since occurred. This may explain the difference in their more recent findings indicating that women dominate men in searches in certain categories (Kennedy, 2011). The World Wide Web Foundation (2015b), however, recently leaned towards the initial Kennedy et al. reports, stating that fewer female than male Internet users across the nine cities they had surveyed actively sought out information online in important areas such as legal rights, health and public transport. The figures of 21% and 27% (for female and male Internet users, respectively) were described as quite low for both groups. They are said to rely largely on information "passively 'absorbed' from TV and radio, family and friends, or

health and social workers, rather than proactively defining their own searches on the Web" (World Wide Web Foundation, 2015b, p. 28).

In contrast, Colley and Maltby (2008) found women very positive about accessing information on the web, even more so than men, in fact. The findings of a Kenyan study supports this claim: women were more likely than men to cite gaining information as a reason for acquiring a mobile phone (Cowell, 2016). Research suggests that women outnumber men in searching specifically education (Bujala, 2012; Hilbert, 2011; Li & Kirkup, 2007; OECD, 2007; Rashid, 2016; Wilson & Lawan, 2015) and health-related information (Bujala, 2012; Kennedy, 2011; OECD, 2007; Rashid, 2016). Female students, for example, were found to use the Internet for research and educational purposes more than males. Bujala (2012, p. 60) noted that this "indicates either a greater proclivity of female students to fully take advantage of the educational capabilities of the Internet, or is a derivative of the greater diligence of girls as students". Based on findings of this kind, Wilson and Lawan (2015) concluded that women use the Internet more for research than fun or entertainment and Li and Kirkup (2007) proposed that women view the Internet as more of a tool as opposed to men who consider it more of a toy. On the other hand, findings from the After Access survey showed South African men to be more active than women in using the Internet for educational purposes, though only slightly so at 45% of men and 43% of women (Gillwald et al., 2018). According to Intel (2012), the longer women are online the more likely they are to use the Internet for purposes other than entertainment and to move towards capitalising on its potential as a source of relevant educational and employment related information.

In addition to these pertinent categories, research related to the type of information being sought and the nature of the websites visited have reported general trends. For example, men are said to dominate in websites and information gathering related to politics, the news, government information, business and finances (Gray et al., 2016; Kennedy et al., 2003; Pew Research Center, 2015c; Ponge, 2016; Rashid, 2016; Wasserman & Richmond-Abbott, 2005). Given the distinctions between these and the previously discussed female-dominated (i.e. health and education) categories, Gigler (2015) noted that women appear to be more invested in online activity geared towards social good (health, child care, malnutrition, education and literacy), while men leaned towards economic and productive activities. Men were also performing significantly more searches related to eroticism and sexually explicit material (Jones, Johnson-Yale, Millermaier, & Perez, 2009; Soh et al., 2013; Wasserman & Richmond-Abbott, 2005). Wilson and Lawan (2015) reported that many females had responded positively to "women-related websites" and found information derived

from such sites useful. Such a finding supports calls to increase content appealing specifically to women to motivate more females to use the Internet.

As opposed to information consumption, an increasingly important aspect of usage relates to the contribution, generation and sharing of content, where evidence suggests women lag behind men (Schradie, 2015). In South Africa, for example, it was found that the active creation and sharing of content was an activity more frequently described in male than female focus groups (Roux & Dalvit, 2014). A 2011 Wikipedia study revealed that despite the 3.5 million English articles, and information in 250 languages overall, the contributor base of the platform consisted of barely 13% women (Cohen, 2011). Figures of female contribution to (well-established) public thought-leadership forums were similar (Cohen, 2011). However, research has indicated that activities such as blogging are on the rise amongst young women. In Sweden, for example, two-thirds of 16 to 25 year-old females actively write or have written a blog (World Internet Project, 2013). The World Wide Web Foundation (2015b) (in their focus on developing countries) reported that women are only half as likely as men to express themselves online, a trend which was supported by Wilson and Lawan's (2015) findings in Nigeria.

Perhaps the most frequently discussed aspect of gendered disparities in ICT usage is the social paradigm. A vast amount of research, dating back decades to very recently, has reported that women tend to be heavily concentrated within the communication and social applications of technology (Bujala, 2012; Duggan, 2013; GSMA, 2015; Haight et al., 2014; Hargittai & Shafer, 2006; Intel, 2012; Joiner et al., 2012; Keller, 1992; Kennedy et al., 2003; LirneAsia & Research ICT Africa, 2017; Roux & Dalvit, 2014). This pattern has been increasingly reported over time with growing female Internet usage. Longitudinal studies have also been useful in revealing how women dominate on social networking sites, compared to earlier observed trends in communication-related Internet usage (Joiner et al., 2005, 2012). This was confirmed by bodies such as the United Nations (2012) as well, reporting that while women accounted for just less than half of the total visitors to such sites, they consumed the majority of pages and spent significantly more time doing so. Intel (2012), citing a TNS Digital Life Survey, also observed such gender disparities in the time invested in social media, reporting that women spent an average of five hours per week on this activity, which was 36 minutes more than men, while women aged 16 to 20 registered a total of 6.8 hours per week on social networks. Findings from the Pew Research Center indicated that in nine out of ten surveys conducted between 2009 and 2012, women were significantly more likely to use social networking sites (Duggan, 2013). In 2015, the survey figures stood at 73% and 80%, respectively, for online men and women, using social media (Anderson, 2015). This is similar to recent South African figures

indicating that 71% and 76%, respectively, of online men and women used social media (Gillwald et al., 2018). Anderson (2015) did, however, detect significant differences in the type of social platforms being used. Women concentrated on Pinterest, Facebook and Instagram, while men tended to form the larger user base on online discussion forums such as Reddit (Anderson, 2015). This could be linked to the previously discussed trend of men being more willing to express opinions online.

South Africa has been no exception in terms of research closely linking women with socially geared ICT use and indicating that they communicate across a wide range of private, semi-private and public channels in which they are heavily invested (Roux & Dalvit, 2014). Some of these channels, such as Facebook groups were also being used for political and social mobilisation along with more personal communication (Gillwald et al., 2018; Roux & Dalvit, 2014). Though not distinguishing between genders, Gillwald et al. (2018) noted that 60% of South African social media users were using these platforms to read the news. Roux and Dalvit (2014) on the other hand found in support of the wider reported trend that women were not really using their devices to read the news. However, they were using online social groups to engage in much discussion around news, current events and even debates on national politics, suggesting that the social platforms serve a broader information-sharing function than may be assumed (Roux & Dalvit, 2014).

The World Wide Web Foundation (2015b) revealed that in developing countries, the primary value of the Internet to both urban males and females is currently social, rather than for information gathering, economic or political purposes. Intel (2012) also suggested that when low-income urban women go online, a large share of their usage is related to social purposes (email and social networks). Recent study findings have also reported video-calling to be the only mobile Internet activity capitalised on by more females than males (GSMA Connected Women, 2018). While considered appealing by the women themselves, the social dimension of a mobile phone was often what their husbands intended the women to engage in when purchasing devices for their wives (GSMA, 2015). Some men considered this to be the appropriate form of ICT use for women. As opposed to the social correlation with women, ICT usage of men has been more aligned with professional and economic purposes (De Silva et al., 2012; Gender and ICT Network, 2005). The recent After Access survey findings indicated that in South Africa, women were more active than men in using social networking sites while men were more active in using the Internet for work-related purposes – 32% of men and 22% of women respectively used it for such work purposes (Gillwald et al., 2018). A separate study by LirneAsia (2012) found that women perceived income and employment as the least applicable purpose of usage to them personally. On the other hand, other reports suggested that women perceived the positive effects on income and employment as a

primary benefit of ICT (far outweighing education, safety or entertainment benefits) (Scott, 2017), and that ICT was being put to use for livelihood related purposes by marginalised women (LirneAsia, 2012; Masika & Bailur, 2015; Munyua, 2009).

An underlying narrative can often be picked up in discussions relating to women's social use of ICT. It is implicit in arguments such as: "It is only when women have access to the Internet that they can use it and only when it is used appropriately that the set target can be achieved" (Wilson & Lawan, 2015, p. 50). The statement is valid and not without merit. However, the word 'appropriately' carries certain connotations and deserves some thought. Typically, statements that argue for ICT use in the efforts towards the empowerment of women carry an underlying implication that such empowerment lies primarily in the economic context and that there is a need for women to "seriously participate in mobile phone access and use beyond mere social function" (Wakunuma, 2013, p. 134). This is undoubtedly necessary for women to achieve the level of economic benefits afforded to men. However, some have taken issue with this apparent need to weigh forms of usage against one another to the extent that the importance of one appears to be minimised and undervalued (Broadband Commission, 2013; Zainudeen et al., 2010).

The Broadband Commission was one such body. It noted that in calls for increased ICT usage by women, it should be remembered that "gender equality in the use of ICTs should not necessarily mean that men and women should use ICTs in the same way" (Broadband Commission, 2013, p. 24). Zainudeen et al. (2010) have also questioned this often unspoken yet evident assumption in many studies that relationship maintenance (which these studies have suggested to be women's main use of ICT) is less worthy than other uses. The question then arises whether the impact of previously unattainable communication and information avenues to a largely socially excluded citizen (and thereby the potential of increased participation in society), can be simply judged as less significant than economic and business-related uses of ICT. Such impact is evident in the direct reports from women expressing that non-economic related social networking and information gathering has been "liberating" and "opened our eyes to the world, to understand and enjoy life" (Masika & Bailur, 2015, p. 51). This should not be easily dismissed or minimised. Furthermore, it is becoming increasingly difficult to separate social and business dimensions to make such neat distinctions and comparisons (De Silva, Ratnadiwakara, & Zainudeen, 2011; Zainudeen et al., 2010). The statement by Huyer and Hafkin (2007, p. 4) may possibly be a good way of highlighting the core issue of the debate:

> The tendency exists for knowledge to be seen primarily in relation to its economic functions …. Knowledge is not only for economic growth but its foremost use should be to empower and develop all sectors of society. A socially inclusive knowledge society empowers all members of society to create, receive, share and use information and knowledge for their economic, social, cultural and political development.

The social and communicative aspects of usage present an interesting opportunity for reflection on relationships between gendered identities and ICT usage. Women have often been strongly linked to social purposes of online usage due to perceptions of them being the more expressive sex and significantly more involved in relationship maintenance in the offline world. In this capacity, Kennedy et al. (2003) have previously referred to women as the "kin-keepers". According to Colley and Maltby (2008, p. 2007), it had been "predicted that women would use e-mail more and men use the Web for information more, based on the greater interpersonal orientation of women and greater task orientation of men". It was previously even reported that women are able to establish "close, reflective and warm communication in telephone talk with women whom they have never met" (Moyal, 1992). Zainudeen et al. (2010) have questioned such assumptions, which consider women's ICT usage as naturally geared towards relationship maintenance and men's towards instrumental purposes. They suggested that such claims largely resonated with those who wanted gendered differences to emerge, and men who wanted to be perceived as efficient.

This leads to another often implied factor, which is that men's usage is more task-oriented, largely due to the "greater interpersonal orientation of women and greater task orientation of men", a point made previously by Colley and Maltby (2008) in this section, and supported by some whose findings suggested males engage significantly more with a wider range of technological applications (Cowell, 2016; Joiner et al., 2005). However, this may be questioned when considering the findings of authors who have reported that females take the more pragmatic approach to using ICT in engaging in activities they deem useful (Tondeur et al., 2016). Greater restrictions on their access and time to engage may in fact force women to be task-oriented Internet users, adopting only activities which serve a functional or productive purpose or increase efficiency in carrying out their duties (Scott, 2017; Sylvester, 2016). Examples include use of a device in activities such as relaying household-related information/tasks (e.g. requesting husbands/children to collect groceries, pay bills etc.) and assisting children with homework (Kennedy, 2011; Sylvester, 2016; Thompson & Paul, 2016). Therefore, Abbiss (2008) described females as "task-oriented users" focused on utilitarian functions of ICT and the end product, whereas males are described as "power users" who are machine-oriented and perceive ICT as a toy to be manipulated. Essentially, women "go online to seek solutions to problems or tips that will make their lives easier" (Wilson & Lawan, 2015, p. 60).

Finally, it is important to note that while gendered usage is clearly attributable to a range of complex factors, the role of access in impacting usage remains highly significant. As Helsper and Reisdorf (2016) have argued, the 'second-level' factors impacting usage add to but do not replace the primary issue of access. Advocating a focus on usage gaps, in no way suggests the abandonment of efforts to increase access, particularly in developing countries. Analysis on the range of intricate usage-related factors is, however, imperative in ensuring the participation of both men and women in the digital world.

2.6 SOCIO-DEMOGRAPHIC DETERMINANTS OF ICT USAGE

Research on digital inequality has illustrated that ICT usage largely coincides with socio-economic and demographic characteristics. Factors such as income, education and employment have come to be considered useful determinants, predictors or influencers in who engages and to what extent. Age and social participation have also featured quite prominently in such discussion. These influencing factors on ICT usage deserve attention within the context of a gendered focus, as women have historically and (in many parts of the world) continue to be in unfavourable positions in areas such as education and income (Hilbert, 2011).

The degree to which these factors are reliable indicators of digital engagement may be disputed. While the bulk of earlier digital divide research reported clear overlaps between digital exclusion and socio-economically vulnerable groups, more recent studies have proposed that socio-economic characteristics no longer hold as much weight and the situation has become much less clear-cut (Brotcorne, 2016). However, there remains compelling evidence that certain factors (such as income, employment, education, age and social and civic participation) play a determining role in ICT engagement and perhaps more so in the level of intensity and benefits gained from such activity (Millard, 2015). These factors are discussed below.

2.6.1 Income

Income is inextricably linked to digital use – the poorer people are, the lower the overall likelihood of their fully engaging with ICT (and vice versa) (Zickuhr & Smith, 2012). Costs of Internet access relative to average income remain alarmingly high in many developing countries. Despite the UN recommendation that the expense of 500MB should not exceed 5% of the income of all citizens, the Alliance for Affordable Internet (A4AI) reported that the bottom 20% of earners were spending as much as 14% of income on basic broadband access, compared to the less than half a percentage spent by the top 20% (Alliance for Affordable Internet, 2016). Although income is often considered

less relevant in more developed nations, research focused on countries such as Canada, Korea and a range of European Union members have reported income to be continuously significant and in fact the most pertinent factor in non-access to a computer and the Internet, with higher income households more than four times as likely to have such access than those with low-incomes (Montagnier & Wirthmann, 2011). Research in the Gauteng region of South Africa found that nearly all respondents lacking Internet access were from low-income households and that the likelihood of having accessed the Internet was almost ten times greater for above median than below median income individuals (Cohen, Bancilhon, & Grace, 2018). In a much broader survey, Gillwald et al. (2018) reported that 100% of South African non-users of the Internet fell in the income category of less than ZAR 7 167. Income was also revealed to be a reliable predictor in the case of where people connected to the Internet: those connecting from their mobiles and public access centres fell into the lower end of the income bracket and those connecting from home into the higher ends of the income bracket (De Lanerolle, 2012). However, other research suggests that income may play a lesser role where the use of mobile devices are concerned, specifically in South Africa compared to other African countries (Research ICT Africa & Intelecon, 2012).

Income is of particular importance in the context of the digital gender divide. It was recently reported to the South African Parliament that while affordability is the key challenge to Internet access, "it is compounded by income inequality between genders" (Herman, 2016). Across the world, women typically earn less than men and have less control over household income and spending (Alliance for Affordable Internet, 2016; Ikolo, 2010; Schmidt & Stork, 2008; United Nations, 2014). The gender wage gap concerning BOP men and women is estimated to be between 30% and 50% (Alliance for Affordable Internet, 2016), so women are disproportionately affected by the costs of Internet access. Unsurprisingly, research has found countries where the proportion of Internet access costs were highest in relation to average income were also those with the largest gender differences in Internet use and the smallest number of women online (World Wide Web Foundation, 2015b). This holds particular significance for single-parent, female-headed households, which are typically poorer than those headed by males (Statistics South Africa, 2014). Essentially, there has been general consensus in prominent reports that women in the lowest income categories, particularly low income rural women, are the least digitally engaged demographic group and are least likely to be Internet users (Broadband Commission, 2013; Intel, 2012; World Wide Web Foundation, 2015b). In homes where there are limited financial resources, women are typically also more inclined to spend on what they consider to be the necessities to sustain the household, such as food, shelter and clothing (Ikolo, 2010; Wakunuma, 2013; Zainudeen & Galpaya, 2015).

2.6.2 Employment

While undoubtedly linked to income, employment status is an important determinant or influencer of ICT engagement in its own right. As technology becomes increasingly interwoven across the wide range of daily business functions and processes, the perception of it as a necessity in the world of work is increasingly solidified, while it may not be perceived as essential out of this context (Zainudeen & Galpaya, 2015). Research in Myanmar for example, noted significantly higher mobile ownership among those currently employed (Zainudeen & Galpaya, 2015). Employment may also be a pathway to more frequent and substantive digital engagement in that the workplace is an important point of access for many (ITU, 2017a; Schmidt & Stork, 2008). This again places women in an unfavourable position given that they comprise a considerably lower proportion of the labour market (World Bank, 2012). Furthermore, they are often more concentrated within the informal sector where opportunities for access tend to be more limited (Steeves & Kwami, 2012). In addition to the informal sector, both men and women employed in manual labour positions have also been shown to be less engaged users (Mapi, Dalvit, & Terzoli, 2008; Thompson & Paul, 2016). Consequently, those in formal employment – particularly full-time professional and administrative work – are generally afforded greater opportunity to experiment with technology and develop ICT skills, which is likely to increase the divide (Schmidt & Stork, 2008; Thompson & Paul, 2016; Wasserman & Richmond-Abbott, 2005).

2.6.3 Education

Education and basic literacy have proved to be significant in ICT adoption and usage, to the exclusion of many (Bornman, 2014; Deen-Swarray et al., 2013; Deen-Swarray, 2016; Milek, Stork, & Gillwald, 2011; Schmidt & Stork, 2008). In their study of twelve African countries, Deen-Swarray et al. (2013) concluded that education (along with income) consistently had a positive and significant correlation with both mobile adoption and Internet usage. More recently, Deen-Swarray (2016) confirmed that basic literacy – specifically "being able to read with ease" – increased the likelihood of mobile ownership, significantly so in South Africa. However, low levels of basic literacy were not necessarily found to be a deterrent to mobile ownership as more than 60% of those claiming to read and write with difficulty in South Africa, Nigeria, Botswana and Ghana owned mobile phones. On the other hand, more detailed consideration as to the type of device may be important, considering Cowell's (2016) finding that education is the central driver and determinant of smartphone ownership in Kenya, outweighing even income.

The role of education and basic literacy has been reported as most salient where Internet adoption is concerned (Deen-Swarray, 2016; World Wide Web Foundation, 2015b). Such engagement is reportedly minimal among those with poor or complete lack of reading and writing ability. In South Africa, the gap in Internet use between those who read with ease and those who struggled reached almost 40% (Deen-Swarray, 2016). Other South African studies have found similar patterns of correlation between level of education, and Internet and computer use (Bornman, 2014), as well as differences in place of access (i.e. personal computers at home or work for the higher, and mobile phones or Internet cafes for the lower educated) (De Lanerolle, 2012). Higher levels of education are also associated with the acquisition of more advanced e-skills, likely as a result of increased exposure to ICT (Hargittai, 2002; Schmidt & Stork, 2008).

The influence of education on ICT usage poses a challenge to women in particular given their typically lower schooling and literacy levels in many parts of the world (Broadband Commission, 2013; Prakash, 2012; United Nations, 2014). GSMA (2018) reported that 40% of Nigerian women who do not own a mobile phone reported that literacy presented a key barrier to ownership, compared to 22% of men. The World Wide Web Foundation (2015b) revealed that cities with the highest gender gaps in education also had the largest gender differences in Internet access. On the other hand, cities with greater equality in educational attainment or where women's educational attainment exceeded men's were found to have no gender gap in Internet access. When controlling for income, women with a certain level of secondary education were as much as six times more likely to be Internet users than women with primary school or no formal education (World Wide Web Foundation, 2015b). Numerous studies in a wide range of countries have also illustrated how the gender divide in Internet access tends to narrow at higher and are more pronounced at lower levels of education (OECD, 2007; World Wide Web Foundation, 2015b).

2.6.4 Age

Age has been widely discussed amongst the most common predictors of ICT access and usage (Helsper & Reisdorf, 2016; Montagnier & Wirthmann, 2011) and one which some believe to have increased in significance in recent years (Helsper & Reisdorf, 2016). Diversity amongst age groups is often reflected within the ICT context and digital inequalities surface throughout various stages of life (Robinson et al., 2015; Sylvester, 2016). In view of this, it has been suggested that digital engagement be considered in relation to the life course, described as "a sequence of socially defined events and roles that the individual enacts over time" (Giel, Glen, & Elder, 1998, p. 22). Typical offline variations in activities and social and economic standing (amongst a range of other transitions), which occur between life stages tend to be important determinants for digital use or (ex/non-use)

(Brotcorne, 2016; Helsper & Reisdorf, 2016). Specific individual and contextual factors do play a pertinent role preventing a "one-size-fits-all" model where age relates to technology (Brotcorne, 2016). However, on the whole, younger generations often display higher rates of ICT access and usage than older groups or the elderly, who tend to have had fewer opportunities for exposure in the school and work setting (Kantner & Rosenbaum, 2003; Milligan & Passey, 2011; Montagnier & Wirthmann, 2011). In reporting on digital trends in 2017, the ITU stated that "youth are at the forefront of Internet adoption" with 71% of 15-24 year-olds using the Internet compared to 48% of the total population (ITU, 2017a). In South Africa as well, rates of Internet uptake were shown to decrease as age increased (Gillwald et al., 2018). Six out of ten of those aged 15–34 years and almost half of people aged 35–44 years were using the Internet. This decreased to 43% of those aged between 45–54, 28% of those aged 55–64 years and only 21% of those aged 65 years and above that were using the Internet (Gillwald et al., 2018). The same research also revealed age disparities in the nature of online activities, for example in the use of social networking sites which was significantly more popular with younger generations.

Age has also been noted as a key determinant of the extent to which male and female behaviour varies within the digital context. Gender differences in patterns of usage tend to be more modest in younger generations and more significant in older groups (Fortunati, 2009; OECD, 2007). It was recently reported that in developing and emerging economies, the digital gender gap in Internet usage was about 3% amongst the 15-24 year-old age group, compared to 8% amongst men and women between the ages of 55-74 years (ITU, 2016; World Wide Web Foundation, 2016). However, disparities in mobile Internet use were found even amongst younger citizens where 55% of young men and 44% of young women were using their mobile devices for Internet-based applications and services in research (World Wide Web Foundation, 2015b). Intersectionality between age, employment and income may also leave many older housewives and retired women excluded (Torenli, 2006). Overall, age has been revealed as a relatively good predictor of ICT engagement where older women are typically found to be the least active users (Fallows, 2005; Handapangoda & Kumara, 2013; Indo-Asian News Service, 2015; OECD, 2007; Torenli, 2006; World Wide Web Foundation, 2015b).

2.6.5 Social and civic participation

Research has suggested that the extent of social connectedness and personal social networks increases the odds of an individual engaging with ICT. Studies focused on BOP groups, for example, have found that social pressure was key in influencing decisions to adopt mobile phones and use more-than-voice services (De Silva et al., 2011). On the other hand, having strong social networks

and being actively engaged with ICT may have an adverse effect on women's digital interaction in instances where they have opted to rely on others to undertake ICT tasks on their behalf (Thompson & Paul, 2016).

While the broader concept of social participation is often either conflated with, or thought to encompass civic participation, some have felt it necessary to draw a distinction and more thoroughly examine the latter term (Brotcorne, 2016). Civic or citizen participation – often used interchangeably with 'active citizenship' or 'participatory citizenship' – refers to engagement in both social and political activities which are aimed at influencing decisions surrounding common societal issues (Brotcorne, 2016). Certain research has concluded that a positive relationship exists between offline civic participation and Internet use (World Wide Web Foundation, 2015b). The World Wide Web Foundation (2015b) revealed that after controlling for education, income and age, women who engaged in activities such as organising or attending local community activities and meetings, contacting public officials or government offices, signing petitions, participating in raising funds and contacting local radio or newspaper outlets were more likely to use the Internet and to be the more frequent users (World Wide Web Foundation, 2015b). Those with higher levels of offline civic and political engagement of some sort were three times more likely to express opinions on important issues online than those less engaged (World Wide Web Foundation, 2015b). The study reported that higher levels of civic and political engagement along with education "strongly increased the likelihood that women would be connected and using the Internet to participate in public life, to enhance economic opportunities or to expand social capital through online strategies for 'bridging' and 'linking' beyond the existing limits of kin and community" (World Wide Web Foundation, 2015b, p. 41).

2.7 BARRIERS TO ICT USAGE

The categorisation of barriers to ICT usage, and the emphasis (or lack thereof) placed on various constraints often differ within literature. Affordability and skills-related barriers are almost certainly the key focus in most discourses, usually accompanied by varied attention to other challenges such as relevant content and language. It is imperative to note that the majority of challenges inhibiting usage significantly affect men as well as women. However, given the typical gender differences in pertinent areas such as education and income – which underlie many of the barriers – women tend to be disproportionately affected. In addition, increasingly discussed gender-based social norms present a unique challenge, specific to females. In certain instances, discriminatory social norms are distinctly identifiable, direct barriers to ICT access and use for women. In another sense these norms

often play a 'hidden' (GSMA, 2015) or 'invisible' (Prakash, 2012) role, intricately underlying the more general constraints and making women more susceptible to digital exclusion (World Bank, 2016).

The intent of this section is to discuss barriers to ICT usage in a light which unquestionably includes their impact on men but goes beyond typical non-gender sensitive analysis by also exploring the extent to which these challenges are uniquely applicable to women. The following discussion encapsulates a wide range of the challenges to ICT usage experienced by men and women around the world.

2.7.1 Constraining gender norms and patriarchal attitudes

Conservative socio-cultural gender norms, deeply entrenched in many communities, are brought to the practices and discourses around ICT use by both men and women and have proven to present a significant barrier to such usage for many females (Buskens & Webb, 2014; Gender and ICT Network, 2005; GSMA et al., 2010; Indo-Asian News Service, 2015; Intel, 2012; Scott, 2017). These norms may influence usage in rather indirect and unforeseen ways. One such example is highlighted in Uganda, where a cultural norm dictates that 'girls don't run'. As a result, girls were expected to walk to the school computer venues during the class' designated times, while it was accepted that boys would run and consequently reach and claim access to the computers first (Gadio, 2001). In these resource-constrained schools with limited computers, girls were thus placed at a disadvantage. In the case of more direct relationships between socio-cultural gender norms and ICT, opposition to women's mobile phone, computer and Internet engagement has ranged from a general lack of male (and familial) support, to discouragement and outright prohibition (Intel, 2012). In many cases, the same lack of support or discouragement extends to girls furthering their education, particularly with respect to fields which would entail a higher degree of technical interaction (Scott, 2017). This is underscored by perceptions such as those revealed in a survey in Jordan where only 43.9% of male respondents felt that women should be allowed full use of computers and a mere 26% believed women should be allowed full use of the Internet (Abu-Shanab & Al-Jamal, 2015). Quite unsurprisingly then, the female survey respondents indicated that cultural factors were one of the greatest ICT barriers for women. As this sample consisted mainly of highly literate university students, the researchers expressed their substantial concern that discouraging male attitudes and a significant social and culturally-driven digital gender divide were likely to be even stronger in the wider Jordanian society.

Multiple studies conducted in primarily non-Western countries have revealed that women's ICT engagement is often perceived as conflicting with internalised cultural notions of 'proper

womanhood' (Kyomuhendo & Kabonesa, 2006). It is viewed as likely to destabilise spousal relationships and disrupt social conventions (Buskens & Webb, 2014; Gender and ICT Network, 2005; Huyer & Sikoska, 2003; Masika & Bailur, 2015). The increasing cultural shift of women from the household to a more public domain can prove unsettling and threatening for males and male-dominated institutions (Buskens & Webb, 2014; Kyomuhendo & Kabonesa, 2006). As an enabler and catalyst for this shift, ICT and "the information revolution is a threat to domestic equilibrium" (Gender and ICT Network, 2005, p. 55).

A common finding from qualitative research has been the rationale that women's mobile phone and Internet activity will prevent them from meeting their expected household and childcare duties – core tenets of traditional understandings of a 'good woman' (Kyomuhendo & Kabonesa, 2006). Numerous studies (in different regions of the world) presented reports of anger, discouragement or prohibition from husbands as well as extended family members supposedly as a result of ICT interfering with women's responsibilities (Gender and ICT Network, 2005; Intel, 2012). Many of the women consequently limited their Internet activity or use of public centres.

In addition, the perceived "threat [of ICT] to domestic equilibrium" and "destabilising the relationship" appears to be closely related to the increased opportunity for women to socialise with other men. Literature suggests significant levels of suspicion by men (particularly in developing countries) that mobile phones and the Internet will present women with the opportunity to engage in pre- or extra-marital relationships and/or have a general 'corrupting' influence on them (Gender and ICT Network, 2005; GSMA et al., 2010; Handapangoda & Kumara, 2013; Intel, 2012; LirneAsia, 2012; Porter et al., 2012). Porter et al. (2012) report that in a particular region of South Africa there is quite a pervasive perception that girls from impoverished families who own mobile devices are involved in illicit relationships. Additionally, the stereotype correlating female mobile ownership with perceived immoral behaviour also appeared firmly instilled in the young girls themselves (Porter et al., 2012). On the other hand, it is often women's exposure to what is considered a suspicion-worthy platform that invites male objections. According to survey findings by Pew Research Center (2015b), the Internet was viewed as having a negative influence on morality. The Internet is commonly perceived as an unsafe space, comprised of many dangerous characters and an abundance of sexual content (Gorski, 2001; Intel, 2012). The assumed benefit it provides of exposure to alternative points of view may also not be viewed positively by men with regard to women (Cowell, 2016). In many cases, men object to exposing women to a platform of this nature, believed to be inappropriate for females, who are typically perceived as more vulnerable, impressionable and in need of protection (Intel, 2012; Research ICT Africa & Intelecon, 2012; Wilson & Lawan, 2015).

In many contexts, it may not be exposure to the Internet itself but to the public place of access that is problematic. Biased gender norms in some cultures have made it taboo for women to interact with men outside the family circle or move around without a male chaperone. In such cases of limited mobility, visiting an e-centre may be a difficult endeavour for women (Geldof, 2011; Gurumurthy, 2004; Ikolo, 2010; Steeves & Kwami, 2017; Zainudeen et al., 2010). This proved to be the case for female university students in Khartoum who were limited to computer access within their homes after class (for those fortunate enough to have such home access), while male students were able to visit Internet cafes or homes of friends (Mubarak, 2014). Female presence at the e-centre may also be culturally frowned upon by the broader community where women may be viewed as "stay-at-home assets" (World Wide Web Foundation, 2015b) and considered "irresponsible" if visiting such a facility (Steeves & Kwami, 2017). Women themselves may also be opposed to using public e-centres most specifically when operated by men (Richardson, Ramirez, & Haq, 2000; Zainudeen et al., 2010). In many rural areas and small towns these facilities typically become entertainment spots, frequented by local men and boys for accessing pornography and essentially turn into male spaces (Gurumurthy, 2004; Ojokoh, Zhang, Oluwadare, & Akintola, 2013). This consequently leaves many women and girls wary of visiting these centres, which is particularly concerning in cases where it may be the only available source of computer or Internet access.

As discussed at an earlier stage of this literature review, it is also stereotypes and entrenched misperceptions of women as inherently less capable and 'bad' with technology, which has led to them being discouraged from engaging (Ikolo, 2010; Intel, 2012; World Wide Web Foundation, 2015b). An advocate for attracting underprivileged girls into the ICT space explained how the biggest barrier for females in India was this type of cultural stigma and the negative both subtle and explicit signals girls are given from a young age (Dutta, 2015). She relayed how despite having an engineering degree, her family remained hesitant and unsupportive of her using the household computer for fear that she would damage it, while having no qualms with her husband accessing it. Perceptions that technology is somehow inappropriate for them are internalised by many girls and remain with them well into adulthood. One in five of the sampled women in India and Egypt believed that the Internet was not appropriate for them (Intel, 2012).

Unsupervised ICT activity by women has often been viewed as inappropriate and been met with much policing and control by husbands, male relatives and community members, mirroring the uneven power relations offline (APC, 2010; Gender and ICT Network, 2005; Hafkin & Huyer, 2007; LirneAsia, 2012; Munyua, 2009; Ponge, 2016; Suresh, 2016; Wakunuma, 2007, 2013). A study of six West African countries found that many men refused to allow their spouses a mobile phone or to

visit local e-centres (Gender and ICT Network, 2005). Power and decision-making in this respect is not restricted to husbands or partners. In Pakistan a woman expressed how she had to convince her (notably, younger) brothers before she could purchase a mobile phone, despite the fact that as the family's chief wage earner she would be paying for it herself (LirneAsia, 2012). In cases of extremely regressive gender politics and customs such as caste panchayats in India, mobile phones were banned for unmarried local women by the 'elder' males (Indian Express, 2010) who – though informally – govern and hold sway over the daily lives of the rural communities. The rationale for the ban was their belief that the phones encouraged 'loose' conduct amongst women.

Many females in these developing regions do of course own devices and are active Internet users. A concern is that they may be doing so while having their activity monitored to some degree (Burrell, 2010; Munyua, 2009). In Congo, researchers have revealed that women often use email accounts set up by a male who then retains the password details, while the reverse situation is rare (APC, 2010). This double standard was lamented by women in South Africa who explained that they were expected to allow their husbands or boyfriends open access to their mobile phones, while they were refused the same privilege (Han, 2012). A West African study also provided many salient examples of men monitoring the mobile and Internet activity of their partners (Gender and ICT Network, 2005). The lack of freedom, privacy and control women often encounter when they use technology may well prevent their moving on to really beneficial use. Furthermore, a critical conflict exists between women's ICT use and the need to "keep peace in the home", a phenomenon reported by multiple studies (Gender and ICT Network, 2005; Handapangoda & Kumara, 2013; Kyomuhendo & Kabonesa, 2006). Buskens and Webb (2014) have described how social harmony is often rooted in gender inequality and the potential of ICT to bring about greater equality may be unacceptable to many. In certain cases such conflict has escalated beyond general strain on the relationship, to physical abuse and even fatalities (APC, 2010; Kyomuhendo & Kabonesa, 2006; Wakunuma, 2007). Such violent behaviour has been explained as an attempt to reinstate control and dominance in the domestic context, which is felt to be under threat (Kyomuhendo & Kabonesa, 2006). Resistance by women to relinquish control of their own ICT activity can therefore have dire consequences.

Ultimately, many women (consciously or unconsciously) decide on the extent to which they will adopt a particular technology based on how they believe it will affect the gender equilibrium, and in many cases these decisions favour maintaining domestic peace and social order (Buskens & Webb, 2014; Masika & Bailur, 2015). While it may possibly appear so from earlier examples, "'socio-cultural norms' are neither static nor passively accepted by women" (Masika & Bailur, 2015, p. 44). It should not be assumed that they simply accept and abide by gender-based restrictions when far more

complex processes are at play. Two such processes highlighted by Masika and Bailur (2015) are adaptive preferences – "choices made by a person wherein (s)he unconsciously downgrades and re-contextualizes his/her desires for what (s)he cannot access" (Elster, 1985 cited by Masika & Bailur, 2015, p. 47) – and patriarchal bargaining – ways in which "women strategize within a set of concrete constraints" (Kandiyoti, 1988, p. 26). The first of these was amply illustrated as a majority of the women interviewed explained their difficulty in conducting business calls at home due to their husbands' suspicions of affairs (Masika & Bailur, 2015). They therefore opted to limit their use of the phone within the home to alleviate tension and maintain peace. In the case of patriarchal bargaining, a young woman was only allowed to visit the computer centre when accompanied by her brother (reportedly to protect her from exposure and interaction with local men and boys) (Masika & Bailur, 2015). Enjoying the benefits of ICT in this case is therefore on condition of her abiding by patriarchal customs. Similarly, in Nairobi some women felt that their use of ICT was subject to an invasion of their privacy (Munyua, 2009). Of course in many instances women resent and put up considerable resistance to being placed in a position of having to forego or limit the benefits received by ICT use, which in certain studies only aggravated domestic conflict and even ended marriages (Kyomuhendo & Kabonesa, 2006). From most of the discussed literature however, it can be inferred that as a result of the constraints of patriarchal socio-cultural norms many women resign themselves to significantly limit or discontinue use altogether.

Based on the literature reviewed, it may be concluded that gender norms pose a challenge to the appropriation of ICT for many women. However, research has also suggested that while such a barrier exists, the distribution is uneven and it plays a negligible role in certain countries (GSMA, 2015; Intel, 2012). Women in Middle Eastern countries, for example, are generally said to experience this barrier to attaining the benefits of ICT use to a greater extent than those in Western countries, where gender-based social norms may be more relaxed (Pretorius, Mawela, Strydom, de Villiers, & Johnson, 2015). Disparities in the prevalence of these norms also exist within countries, most noticeably between rural and urban areas (Geldof, 2011; GSMA Connected Women, 2018). While it may be a contributing factor to limiting ICT use of women in many parts of Africa, GSMA (2015) reports that it may still be overshadowed in these areas by more pressing concerns such as cost and infrastructure. The existing global – specifically developing country – research indicates that socio-cultural norms and patriarchal societal systems must be recognised as a significant and nuanced barrier to women's empowerment via ICT.

2.7.2 Costs of ICT engagement

Affordability of access remains a massive challenge to efficient ICT usage, particularly for the many marginalised citizens in developing countries (Alliance for Affordable Internet, 2016; GSMA Connected Women, 2018; ITU, 2014). Contrary to popular belief, the challenge is not exclusive to developing regions as costs continue to be a relevant barrier to ICT engagement for citizens of developed countries as well (European Commission, 2014; Helsper & Reisdorf, 2016). Costs of communication services in South Africa have been consistently reported as high by both African and global standards (Gillwald et al., 2012). Gillwald et al. (2018) reported that, overall, affordability of devices and services remained the primary inhibitor to Internet use in South Africa. Even where the challenge of access to resources such as mobile devices, computers and data is overcome, the cost of more sophisticated applications and services often makes it difficult to capitalise on them, thus limiting the potential transformational and empowering benefits of technology (Deen-Swarray et al., 2013).

The high cost of owning and accessing ICT is undoubtedly one of, if not the main challenge to digital engagement for men around the world, South Africa included (Rey-moreno, Blignaut, Tucker, & May, 2016; Roux & Dalvit, 2014). Women, however, tend to have less financial freedom and dependence than men which makes them disproportionately susceptible to being affected by this challenge (Antonio & Tuffley, 2014; Melhem et al., 2009; Ponge, 2016; Wakunuma, 2013). Single-parent, female-headed households are reportedly most affected by the high costs of connecting according to the Alliance for Affordable Internet (2016). The South African government also identified the issue of costs as one of the key barriers affecting women's use of ICT (Mkhize, 2015). This is often intensified for women residing in rural or remote locations (Thouvenot & Holmes, 2015; Jiyane & Mostert, 2010). Prominent larger scale studies revealed cost to be either the greatest or at least one of the primary constraints for women in developing regions around the world (GSMA Connected Women, 2018; GSMA, 2015; Intel, 2012; World Wide Web Foundation, 2015b). This is also evident in many South African and other African studies (Abraham, 2009; Comfort & Dada, 2009; De Lanerolle, 2012; Deen-Swarray et al., 2013; Munyua, 2009; Ojokoh et al., 2013; Rey-moreno et al., 2016; Roux & Dalvit, 2014; Wilson & Lawan, 2015). The most recent GSMA findings reveal affordability of a handset and/or credit costs to be the greatest barrier to mobile ownership for South African women (while much less significant for men) (GSMA Connected Women, 2018). Affordability was, however, equally challenging for both men and women with respect to accessing the Internet via a mobile device. Financial constraints have presented a significant limitation to optimal use even for those already

using the Internet for more substantial purposes, as proved to be the case for university students in developing countries (Purushothaman, 2013; Wilson & Lawan, 2015).

Purchasing a device and mobile credit or data are the primary affordability barriers to usage. However, the added costs of less obvious expenses make usage even more out of reach for many. This includes the additional costs required to charge a device, the mark-up fee at which credit is typically resold in rural areas and unexpected repair expenses of broken devices (quite common due to the high prevalence of cheap, low quality handsets) (Cowell, 2016; Deen-Swarray et al., 2013; Rey-moreno et al., 2016; World Wide Web Foundation, 2015b; Zainudeen & Galpaya, 2015). Rey-moreno et al. (2016) reported that in one rural South African community, the mark-up of credit combined with the cost of charging a device amounted to 23.24% of the total expenditure in mobile phone services. Of the study's respondents who owned a mobile phone, a SIM card or purchased credit to use in someone else's phone, 41.2% reported that they had sacrificed on other things in order to buy credit (Rey-moreno et al., 2016). Alarmingly, many of these sacrifices were on essential items (i.e. food, or items required for cooking and lighting), which clearly illustrates the magnitude of the affordability barrier and the unfortunate choices many find themselves having to make.

Where affordability constraints are a considerable challenge, the phenomenon of sharing devices is common (Blumenstock & Eagle, 2010; GSMA, 2015; Macpherson & Chamberlain, 2013). While this affords many women a degree of access, preferential access is often still practised where the available ICT is allocated according to an existing social order and hierarchy, which is then ultimately reinforced (Burrell, 2010). Due to power dynamics within the household the first opportunities for use are typically reserved for men, with women falling last in line (Mubarak, 2014). Research in Bihar, India revealed that households generally contained two mobile phones; one more modern and loaded with credit which typically accompanies the male head of the household out of the home during the day; and a second often older device usually without credit, which remains at home with the women and family mainly for the purpose of receiving calls (Macpherson & Chamberlain, 2013). This second 'shared' phone was frequently removed from the home by (often male) relatives, leaving the women without any source of access. According to LirneAsia (2012), in poor, resource-constrained households the first mobile device inevitably goes to the bread-winner. However, even in countries likely to have substantial amounts of female bread-winners such as Pakistan, Bangladesh and even India, the mobile typically goes to the male by default. If a second device is acquired, it may be assigned to the woman or another male household member. The latter is often the case where breadwinners consider technology a waste on females (Intel, 2012), once again illustrating how gender norms intersect with the affordability barrier.

The primary challenge in shared access is that it places significant restrictions on the extent of usage and benefits derived, be it for men or women (Burrell, 2010; Zainudeen & Galpaya, 2015). While sharing would typically allow for the necessary access to voice services, it often constrains the time required to gain digital skills or use more impactful services (GSMA, 2015; Zainudeen & Galpaya, 2015). Sharing devices also places major restrictions on the privacy allowed to users, affecting the use of applications of a more intimate or personal nature (Burrell, 2010). Discomfort or hesitation about sharing devices were not only felt by the borrowers, but also by the owners due to perceptions that mobile phones are 'personal' and not 'family' or 'common-property' (Research ICT Africa & Intelecon, 2012; Sylvester, 2016). Interestingly, unlike other contexts where the affordability barrier was a major factor in the practice of sharing devices, in South Africa high costs of credit and fear of others depleting this credit or data was the very reason for many refusing to lend out their mobiles (Research ICT Africa & Intelecon, 2012). Zainudeen and Galpaya (2015) reported that reluctance on the part of owners to share has, in turn, made the non-owners reluctant to ask.

The affordability challenge has been a major catalyst in the growth of innovative mobile practices, particularly the use of missed calls (Abraham, 2009; De Silva et al., 2012; Deen-Swarray et al., 2013). This (along with the 'please call me') was in fact the most reported use of the mobile phone according to RIA's 2012 findings. This reflects the continuous difficulty a large share of Africans experience due to the challenge of high costs (Deen-Swarray et al., 2013). This barrier is specifically what prevents many from accessing video and audio content, which consume large amounts of data. Unfortunately, these are precisely the tools which would be most valuable and useful for many marginalised groups, where high levels of illiteracy pose a significant challenge in handling textual content (Alliance for Affordable Internet, 2016; De Lanerolle, 2012; Sprague et al., 2014). Alleviating the affordability barrier would have significant implications for the digital inclusion of marginalised groups.

2.7.3 Skills

Terminology such as digital skills, e-skills, digital literacy, ICT skills, digital competence, along with a range of similar labels has become commonplace in ICT discussions and are often used interchangeably (Chinien & Boutin, 2011). While much debate surrounds the specifics of these terms and identifying what exactly constitutes the necessary digital abilities, general consensus has been reached that an intricate mix of both technical and cognitive skills is required to efficiently process information and utilise technology effectively in different contexts (Chinien & Boutin, 2011; Nita, 2011; Van Deursen & Van Dijk, 2014). Van Deursen and Van Dijk (2014, p. xiii) argued: "… digital skills are the key to the entire process of the appropriation of these new technologies. These skills are vital

for living, working, studying, and entertaining oneself in an information society." Lacking in competence thereby considerably limits opportunities, while those more equipped in terms of digital ability continue to participate more effectively. As devices and services increase in complexity, even those able to access and afford ICT face some level of exclusion due to the absence of necessary skills (Deen-Swarray et al., 2013; Schmidt & Stork, 2008).

Women's digital skills and technical fluency tend to be less developed than men, largely due to their lower exposure and access to ICT, which is required to improve capabilities (Ponge, 2016). Research has found lack of skills to be amongst the most significant barriers to ICT usage for women, often more so than for men (GSMA, 2015; IGMENA, 2016; World Wide Web Foundation, 2015b). In Myanmar some women admitted that they asked others to dial and initiate the phone calls on their behalf (Zainudeen & Galpaya, 2015). A study on Sri Lankan housewives found that the ability to make and receive calls was ubiquitous (Handapangoda & Kumara, 2013). However, only 70% were able to view text messages and even fewer (55%) were able to send text messages. Their ability to perform other mobile functions, for example to send and receive attachments or operate voicemail was significantly lower. In South Africa, a study on female hawkers and vendors found that the entire sample reported that they were conversant with using mobile phones for the basic functions of making and receiving calls and sending and receiving SMSes (Jiyane & Mostert, 2010). However, in truth, in many cases these tasks were being done for them by a child or family member. The research of Zainudeen and Galpaya (2015) revealed a similar dependence by women on others due to a significant lack of digital skills, resulting in substantial insecurity in usage. The women displayed considerable fear that they would break their mobile devices and consequently limited their activity to making calls. The women typically stuck to the instructions they received from others, which was generally only for basic use, in effect never exploring and capitalising on the greater potential of their devices (Zainudeen & Galpaya, 2015).

The lack of competence specifically related to Internet usage appears to be the greatest reason for the skills barrier. The entire sample of 42 female South African vendors acknowledged that they lacked the skills to use their phones for more advanced purposes such as accessing the Internet (Jiyane & Mostert, 2010). In their focus on a range of African countries, Deen-Swarray et al. (2013) indicated that 'don't know how to use it' was the primary reason for not using the Internet, playing an even greater inhibiting role than costs. This was the case for both men and women, though slightly more reported by women. Similarly, a South African study of males and females found that 76% cited lack of 'know-how' as their reason for non-use (De Lanerolle, 2012). Other South African research found that while participants initially described engaging online via their mobile device as

something they did with ease, probing revealed that they had only very basic understanding and competences (Chigona et al., 2009). On a broader scale, across a wider range of developing countries the World Wide Web Foundation (2015b) reported lack of 'know-how' as the single most widely cited barrier preventing poor urban women from using the Internet, while this was not a significant concern for men or women already online.

Research on ICT skills, has often made reference to the individual's self-perceived abilities or self-efficacy, referring to personal belief in their ability to perform a task, regardless of the actual skills possessed (Helsper, 2008). This is important as poor perception and lack of confidence in one's digital capabilities may lead to limited or non-use (Robinson et al., 2015). Gender has been shown to be particularly relevant in the context of self-perceived ability. A wide range of studies have reported that women typically perceive and report lower levels of computer and Internet skills than men (Broos, 2005; Durndell & Haag, 2002; Hargittai & Shafer, 2006; Hargittai & Shaw, 2015; Li & Kirkup, 2007; Mubarak, 2014; Schumacher & Morahan-Martin, 2001; World Wide Web Foundation, 2015b). Mubarak (2014), for example, revealed that female university students doubted their own ICT capabilities and believed themselves to be less competent than men. As a result, they preferred to use the computer together in a group setting, whereas males worked individually – a fitting illustration of gender-related differences in skills (or perceived lack thereof) transferring into disparities in patterns of usage.

Men's more extensive experience with ICT has been proposed as a possible reason for this trend, in that they have had more time to build confidence in their abilities. Notably, higher level of experience has also been correlated with more positive attitudes to ICT use (Broos, 2005). This reasoning may have been particularly plausible in earlier times, given that women typically become users later than men and previously formed a smaller proportion of ICT users (Li & Kirkup, 2007). A study in Myanmar revealed a perception by knowledgeable informants that the observable gender disparity in ability was due to men being more curious and motivated to learn about technology, as opposed to women, who were reluctant to engage beyond the bare minimum required to find employment (Scott, 2017). The question has been raised whether this gender gap in self-perceptions may be due to men being more reluctant to admit to lacking digital skills (World Wide Web Foundation, 2015b). Unlike in the case of females, the manner in which digital skills intersect with gender norms may actually pressure men into developing their abilities. In Sudan, it was explained that it is important for a male's reputation and social standing to possess these skills: those who do not are ridiculed and assigned insulting labels like 'female mouse' (Mubarak, 2014). Mubarak (2014, p. 37) reported that "men apparently do their best to acquire competence and need to feel that they

are in a superior position, so as not be seen to be like women". As previously discussed, women have been socialised to believe they are bad with technology and that it is not really their domain, and this has led them to underestimate their own abilities (Li & Kirkup, 2007; World Wide Web Foundation, 2015b). Interestingly though, Li and Kirkup (2007) have reported that while they found that women underestimate their skills at an individual level, the same women believed that females as a collective possessed the skills to engage with computers and the Internet. Simply put, the general perception appeared to be that "*we* can but *I* can't" (Li & Kirkup, 2007, p. 313).

Hargittai and Shafer (2006) concluded that women's perceived lack of ability is particularly related to information-retrieval and navigating content online. This was corroborated by Thompson and Paul (2016) in an interview with an Indian woman, who despite being an information technology professional, felt more comfortable delegating tasks involving online information gathering to her husband as she believed him to be more competent in this regard. Hargittai and Shafer (2006) found that despite women's belief that their ICT skills were inferior, there was in fact no real difference in the overall level of skills between males and females. These findings were similar to that of Li and Kirkup (2007). Interestingly, not one male participant reported himself to be a complete novice and not one female considered herself an expert user (Hargittai & Shafer, 2006). More recently, Hargittai and Shaw (2015) reported that gender differences in self-perceived abilities exist even amongst men and women whose skills have been objectively shown to be strong. These findings may cast doubt on assumptions that differences in online content accessed by men and women are simply due to differences in their general preferences. Women's perception that they lack sufficient skill and ability may affect their belief in their chances of success in retrieving certain content and performing certain tasks. This may prevent them from pursuing and taking advantage of valuable content and services. This may also relate to the lower frequency and particularly the intensity of use by females as reported by researchers such as Haight, Quan-Haase and Corbett (2014), Hargittai (2010), Ono and Zavodny (2003), and Wasserman and Richmond-Abbott (2005).

A lack of digital skills appears to significantly deter men and particularly women – especially in developing countries – from engaging in online and in certain cases, even basic offline activity. While potentially less of a barrier for those already online, lack of ability may affect the type and frequency of activity users engage in thereby preventing them from gaining maximal benefit from the Internet. In addition to actual level of skills, poor self-perceptions and lack of confidence in their digital abilities, particularly in the case of women, may be playing a significant role in limiting ICT use.

2.7.4 Time

Unpaid household duties, family and childcare responsibilities are disproportionately the responsibility of women (OECD, 2014; United Nations, 2014). When combined with employment, many women face what has been referred to as the 'triple burden' (Pankan & Radhakrishnan, 2016). This results in the gendering of leisure time and women experiencing "time poverty", defined as "the absence of discretionary time women can dedicate to personal interests, paid labor, education, or other endeavours" (Gill et al., 2010, p. 7). An abundance of literature has shown the role which household and childcare duties, often balanced with employment, plays in limiting women's time to experiment online – generally perceived as a leisure activity (Antonio & Tuffley, 2014; Cowell, 2016; Dixon et al., 2014; Gates, 2014; Geldof, 2011; Gender and ICT Network, 2005; Gill et al., 2010; Gurumurthy, 2004; Hargittai & Shafer, 2006; Ibrahim & Adamu, 2016; Indo-Asian News Service, 2015; Kennedy et al., 2003; Kennedy, 2011; Pankan & Radhakrishnan, 2016; Scott, 2017; Steeves & Kwami, 2017). Research by Kennedy et al. (2003) found that being a parent affected the Internet activity of women significantly more than it did men. Women with children in the home were 13 days less active online than women without, whereas the difference between men with and without children totalled only two days. The study concluded that men appear to be less affected by the presence of children (Kennedy et al., 2003). Another example comes from rural South Africa where mobile phones increased the level of employment among young women (more so than among young men), but only those who did not have substantial child care responsibilities (Klonner & Nolen, 2010). Other rural South African (Dlodlo, 2009) and Indian (Balasubramanian et al., 2010) studies indicated that time constraints and lack of child care were major factors in preventing women from attending ICT training programmes. The challenge of balancing family life with the training meant that unless flexible arrangements were made, it was impossible for many women to participate. This also holds true for simply gaining access to public computer and Internet facilities as the operating hours are often incompatible with the schedules of women and girls (Gurumurthy, 2004; Steeves & Kwami, 2017). Though not related to technology, Dixon et al. (2014) found that a primary reason for men having frequented libraries when they were young was that they were bored and lacked things to do with their time. This was not a sentiment expressed by females.

The World Wide Web Foundation (2015b) made a compelling case for the major limiting effect time poverty has on existing female Internet users, outweighing the effects of both cost and skills. This was found to affect women more than men and most specifically poorer women. Lack of time was, however, only the fifth largest barrier in the case of female Internet non-users. This corresponds with the insistence of Hargittai and Shafer (2006) that differences in available leisure time have a

significant impact on the *intensity* of use. A barrier with this much impact on the usage of those already online deserves attention, given the increasing number of previously excluded men and women connecting to the Internet. The findings reported by Ojokoh et al. (2013) also support the argument of time constraints as a significant barrier to usage: while Chinese and Nigerian women displayed considerable differences in their barriers to ICT use (e.g. the role of costs as a constraining factor), the findings with regard to available time as a deterring factor were very similar. This example is indicative of time being a substantial barrier to usage for women of different demographic backgrounds around the world.

2.7.5 Security

The Internet has presented enormous opportunity for crime, harassment, violence and discrimination with severe impacts on people around the world (Broadband Commission, 2013; Henry & Powell, 2015; Radloff & Moolman, 2013). ICT provides avenues for both perpetrating traditional crime in an online space as well as an entirely new range of illicit or harmful activity (Henry & Powell, 2015). 'Real' and 'virtual' harms generally continue to be perceived as separate, which is problematic given the extent to which the virtual world has become embedded in daily social interaction (Henry & Powell, 2015).

'Technology-facilitated sexual violence and harassment (TFSV)' has been noted as specifically targeted at women, although this is not to say it is not a significant or growing problem for men as well (Broadband Commission, 2013; Henry & Powell, 2015). Men may be less forthcoming in reporting such incidents (Donegan, 2012), which reinforces perceptions that the problem is insignificant or even non-existent. Much argument has, however, been made that online harassment disproportionately affects women (Ponge, 2016; Staude-Müller, Hansen, & Voss, 2012; Throop, 2014). It is therefore largely unsurprising that women have also been shown to be more insecure and fearful of potential danger online than men (IGMENA, 2016; O'Brien, 2008). Technology-related violence against women (VAW) exists within the broader context of real world systemic and structural gender inequality (Moolman, 2013). As such, offline gender-based violence and misogyny are reproduced and transferred to the virtual space. While men are affected by online harassment and hate speech based on factors such as race, women face an additional dimension in that they are often targeted solely on the base of gender (Throop, 2014). Online VAW has received increasing public focus (Radloff & Moolman, 2013) and calls have been made for explicit labelling of such activity as 'cyber misogyny' (Throop, 2014).

Cyber VAW occurs in various forms, one of the most common being gender-based hate speech and abusive comments, which is currently widespread on popular social media platforms (Neagle, 2013). Another prevalent form of cyber misogyny is the distribution of sexual and intimate images or videos of people without their consent that are intended to publicly shame or humiliate, often referred to as 'revenge porn' (Henry & Powell, 2015; Ponge, 2016; Throop, 2014). A particularly disturbing and increasingly familiar phenomenon is viral rape videos. The Internet is also the premiere platform of the international sex trade and the trafficking of women and children (Gurumurthy, 2004; Ikolo, 2010). Essentially, the huge amount of online content of a sexual nature has served to normalise the sexual exploitation of women to some extent, which is deeply concerning (Gurumurthy, 2004; Ikolo, 2010).

Women are particularly vulnerable to the threat of cyber-stalking and harassment and are more likely to deal with unwanted advances, intimidation, and sexual predators obtaining their personal information and monitoring their activity (Gorski, 2001; Henry & Powell, 2015; Ponge, 2016; Throop, 2014). Incidents have been reported of girls being lured by predators under false pretences on forums such as the South African mobile chat service, MXit (Han, 2012). Unfortunately, e-centres and Internet cafes – often the sole source of access for many – have also been proved to be less than secure, as email addresses and information of female users may be accessed at these spaces and used to harass them (Gurumurthy, 2004). In Egypt, men have been reported to capitalise on offers for cheap calls in the early hours of the morning, calling random numbers in an effort to harass whoever answers, especially if the receiver is female (GSMA, 2015). Furthermore, the virtual realm allows for the continuation of harm against victims in ways previously impossible as the Internet "records everything and forgets nothing" (Radloff & Moolman, 2013, p. 97). The boundless sharing of the material means the original offense and public shaming tends to follow and essentially re-victimise women (Henry & Powell, 2015; Radloff & Moolman, 2013).

All of this has resulted in safety concerns that represent a significant barrier to females fully capitalising on and benefitting from ICT (Moolman, 2013; Ponge, 2016). Security, harassment, privacy concerns and overall fear of the negative consequences related to the Internet emerged as a primary challenge to women's ICT usage in various studies (GSMA, 2015; IGMENA, 2016; Thompson & Paul, 2016). In certain countries or regions, this was reported to be an even greater barrier than cost. However, it should be noted that ICT usage in these areas was still higher than in those where cost had been identified as the greatest barrier (GSMA, 2015; Thompson & Paul, 2016). The World Wide Web Foundation (2015b) revealed that the ICT-related abuse most often reported by women in their study were threatening or offensive voice calls, emails and text messages or insulting comments

directed at them online. Cyber-stalking, sexual coercion or unauthorised distribution of images and videos were not common. Although they also reported that levels of harassment and abuse overall were low, it was acknowledged by the researchers that a survey was not the most conducive way to extract this sensitive information and that the figures may very well be underestimated given the extent to which such incidents go unreported. In certain cases, while security is a concern, it was not enough to significantly deter women from using the Internet or mobile phones (Sylvester, 2016; World Wide Web Foundation, 2015b). Sylvester (2016) noted it was the men more than the women who felt that the threat to women's security was such that they should reconsider owning mobile devices. Overall, Scott (2017) found that 26% of respondents believed ICT to be dangerous for females while none believed this to be the case for males.

In cases where legislation is in place, it is often generic and ignores the specifics of online gender-based harassment. The police have also been shown to be dismissive of female complaints and there have even been reports of authorities removing the complainants phones (World Wide Web Foundation, 2015b). The World Wide Web Foundation (2015b) found that one in four women who had experienced harassment (either online or via a mobile device) had not reported it, mainly due to their beliefs that "it's not worth reporting", "it happens all the time" and "authorities don't care". Some women limited their use of ICT, most particularly social media and the Internet, effectively removing their voices and self-expression online (Throop, 2014). While the security barrier in relation to ICT usage may not affect the majority of women, it is clearly enough to deter many. One final noteworthy point with respect to the security barrier relates to men rather than women. The most recent GSMA (2018) report revealed that concern for 'personal safety' was the foremost reason for South African men not owning a mobile phone (outweighing affordability, skills and relevance issues). This likely speaks to the high crime rate in the country and is indicative of its effect on ICT engagement.

2.7.6 Relevant content, products, services and language

Lack of relevant content, products and services has traditionally taken a backseat to access and connectivity in ICT barrier discussions (Hafkin, 2000; Huyer, 1999). This is problematic as this particular barrier creates a lack of enthusiasm, which is an important prerequisite in engaging (Marcelle, 2000). Initiatives such as UNESCO's (2014) mobile reading project found limited content to be the greatest barrier, more so than connectivity and cost. Obtaining locally produced reading material proved to be challenging in many countries. The mobile money application and service, MPesa remains a good example of the success of contextually relevant ICT in attracting users. This

home-grown, locally relevant innovation has enabled Kenya's vast majority of citizens without bank accounts to transfer money in an easy and safe manner (Millard, 2015).

There has been considerable research arguing that Internet content and ICT products and services is male-centric and not designed to suit the needs of women (Antonio & Tuffley, 2014; Chemaly, 2016; GSMA, 2015; Gurumurthy, 2004; Thouvenot & Holmes, 2015; United Nations, 2014) who are typically perceived as 'users' or 'receivers' rather than innovators of technology (Gill et al., 2010). This has been particularly noted as a challenge facing women in developing countries and rural or remote areas (Thouvenot & Holmes, 2015; Prakash, 2012). The experiences, perspectives, knowledge and concerns of these women are inadequately reflected, if not ignored on the Internet (Ikolo, 2010; Prakash, 2012). Lack of gender sensitivity in media is not only related to newer but also more traditional technology like television and the radio, which remain in wide use by women in developing regions (Prakash, 2012). Specifically for these women who are often time-poor, the value and relevance of the information and services play a pertinent role in the amount of time and intensity they would be willing to allocate to engaging in ICT activity (Scott, 2017; World Wide Web Foundation, 2015b).

The South African Women in ICT Forum (2015) attributed slow Internet diffusion among women mainly to a lack of content pertaining specifically to their information needs. Relevance and usefulness of technology was noted as a significant barrier to Internet usage for women (users and non-users) by the World Wide Web Foundation (2015b), while less of an issue for men. According to the Global Media Monitoring Project (GMMP) in 2010, only 12% of news stories around the world were focused specifically on women. Furthermore, 46% of news reinforced gender stereotypes, while only 6% challenged these (Global Media Monitoring Project, 2010). Wikipedia provides another excellent example of gender content bias. Cohen (2011) reported on how the website's content is significantly skewed towards men, where articles related to topics considered more in line with women's general interests have notably shorter entries and information than the lengthy and voluminous typically male subject matter. The lack of attention to female-oriented content on such a platform is concerning given that at the time, 53% of American adult Internet users frequented the website (Cohen, 2011). Interestingly, lack of relevant content was significantly more of a barrier for men than women in UNESCO's (2014) mobile reading project, which was reportedly related to the fact that the bulk of the application's available material fell into the fiction genre, said to be less appealing to men who tend to prefer non-fiction. The fact that women were far more engaged in the application than men supports the view that website content may be a barrier to usage or a motivating factor.

An additional challenge lies in the fact that digital content is predominantly in English as well as a few other 'dominant' languages, understandably creating a barrier to the use of ICT for many who lack sufficient fluency (Foley, Alfonso, & Ghani, 2002; Geldof, 2011; George & Barnabas, 2015; Gigler, 2015; Hassanin, 2009; Ikolo, 2010; Livingstone, Van Couvering, & Thumin, 2008; OECD, 2001; Osborn, 2006; Perlmutter et al., 2010; UNESCO, 2014; United Nations, 2012). Common English ICT terminology, for example 'browser' have also eluded many (Zainudeen & Galpaya, 2015). Furthermore, online writing may also be presented at a level which excludes even those with basic fluency (Gigler, 2004; Livingstone et al., 2008).

Research revealed smartphone owners in Myanmar who possessed the curiosity to experiment with their mobile applications but gave up once they discovered these were only available in English and Chinese (Zainudeen & Galpaya, 2015). Others had memorised the icons of the applications but did not know what they were called. Focusing specifically on mobile reading material, UNESCO (2014) revealed that many mobile readers were actively searching for text in their own local languages, which they were largely unable to find. Approximately one-quarter of the youth involved in a South African mobile reading initiative chose material in the local isiXhosa, while the majority of available content was in English (Kraut & West, 2014 cited by UNESCO, 2014). Deen-Swarray (2016) noted that the majority of male respondents in a South African focus group explained that they were unable "to effectively use their phones because they did not understand the MENUs in English" and therefore limited their use to basic functionality.

This latter finding supports the notion that the challenge of language is undoubtedly one experienced by both men and women. Women may, however, be more at risk given their lower level of schooling and their greater representation in rural areas where English is generally less prevalent (George & Barnabas, 2015). Research has shown language to be a significant barrier to Internet use for women (Gurumurthy, 2004; Handapangoda & Kumara, 2013; Jiyane & Mostert, 2010; Prakash, 2012). In a South African study, 93% of women indicated the language of communication used in ICT to be a major challenge and expressed how they struggled to understand messages and instructions which needed to be followed in order to benefit from ICT use (Jiyane & Mostert, 2010). According to Handapangoda and Kumara (2013) difficulty in a foreign language had resulted in some women abstaining from certain mobile activity out of fear of making a mistake. In a rural region of India, more women than men reported lack of available content in the local language Gujarati as well as lack of relevant content and services in general as pertinent barriers to Internet usage, though these reasons were expressed by men as well (Kapoor, 2016).

While online translations are becoming more readily available (Perlmutter et al., 2010), these progressions have not yet succeeded in alleviating this barrier for many. Increased content in local languages may not only serve to draw current non-users to engage online but also increase global readership thereby improving the literacy crisis (UNESCO, 2014). Focused effort is also required to include women in the production of ICT and content. It is essential to gain the knowledge and perspectives from women, on women, to implement relevant information and services, and to ensure their voices are well represented online (Ponge, 2016; Prakash, 2012). Content focused on developmental themes, relayed in local underrepresented languages, could considerably impact standard of living for those most in need (Gigler, 2015; Mourad, Perez, Richardson, & Holston, 2014).

2.7.7 Infrastructure

Sufficient mobile coverage and network access, as well as electricity supply are prerequisites to ICT engagement (Moolman, 2013; Purushothaman & Zhou, 2014; Sprague et al., 2014). The inadequate and unreliable nature of these resources therefore presents a challenge for many. This barrier is particularly significant in developing regions and most specifically (though not exclusively) rural areas (Arnold et al., 2012; Moolman, 2013; Purushothaman & Zhou, 2014). The impact of an issue such as poor electrical supply varies around the world, but is particularly significant in many parts of Africa. A comparative study of China and Nigeria, for example, revealed that this was cited as a barrier to ICT use by 76% of Nigerians, yet only 9% of Chinese women, demonstrating the enormous discrepancies in infrastructure and expenses (Ojokoh et al., 2013). Though highly electrified by continental standards, electrical constraints has proved a challenge for ICT users in South Africa as well (Deen-Swarray et al., 2013; Jiyane & Mostert, 2010; Muller, 2009). Evaluation of a South African ICT skills intervention noted power outages as an interference and hindrance to training (Mapi et al., 2008). The substantial role of electricity for many is implicit in reports of short mobile battery life as a barrier to ICT use (Cowell, 2016) and long mobile battery life as a prominent feature in selecting a device (Rey-moreno et al., 2016). Signal quality was the second most noted reason for network selection in a study in a rural South African area (Dalvit, Kromberg, & Miya, 2014). Frustration caused by poor Internet speeds has also resulted in users choosing to stay offline (Purushothaman, 2013). It is, however, important to note that for many, the challenges of poor signal coverage and electricity supply are outweighed by more pressing factors such as costs of ICT, skills, time and relevance (World Wide Web Foundation, 2015b).

2.8 ICT ACCESS AND USAGE BY WOMEN IN MITCHELLS PLAIN, KHAYELITSHA AND SALDANHA BAY

This section reports on findings of the Western Cape Digital Readiness Assessment which was commissioned by the Western Cape Department of Economic Development and Tourism (DEDAT) and conducted by Research ICT Africa (RIA). The Digital Readiness Assessment is described as "an assessment of broadband infrastructure, policy and regulations, skills, affordability, access and use amongst citizens, business and government in the Western Cape" (Research ICT Africa, 2015). As part of this assessment, an in-depth baseline survey on ICT access and use was conducted in 2014 in three under-serviced areas in the province – believed to have low broadband provision – namely, Mitchells Plain, Khayelitsha and Saldanha Bay. The survey was conducted at both the household and the individual level with men and women aged 15 years and older.

The literature review, thus far, has explored international and domestic patterns of ICT access and usage from a gender perspective. The discussion now builds on this by reporting on patterns of ICT access and usage specifically by women in the three areas of the Western Cape under investigation in this PhD study. Given the relatively limited overview of these findings in the Western Cape Digital Readiness Assessment report released in 2015, the ICT access and use survey data was obtained from RIA and analysed for the purposes of this literature review. In accordance with the research question's focus on women, the following discussion relates strictly to the female sample of the ICT access and use survey conducted by RIA. A gender breakdown of the combined sample of individuals surveyed in the three areas is illustrated in Appendix D: Table D.1. The following sections thus report on some of the more significant and relevant findings, which emerged regarding women's: a) access to ICT; b) use of ICT and; c) barriers to the use of ICT.

2.8.1 Women's access to ICT

2.8.1.1 Access to mobile phones

Mobile phone ownership was revealed as widespread among women, with slightly over three-quarters owning a device (Figure 2.1)

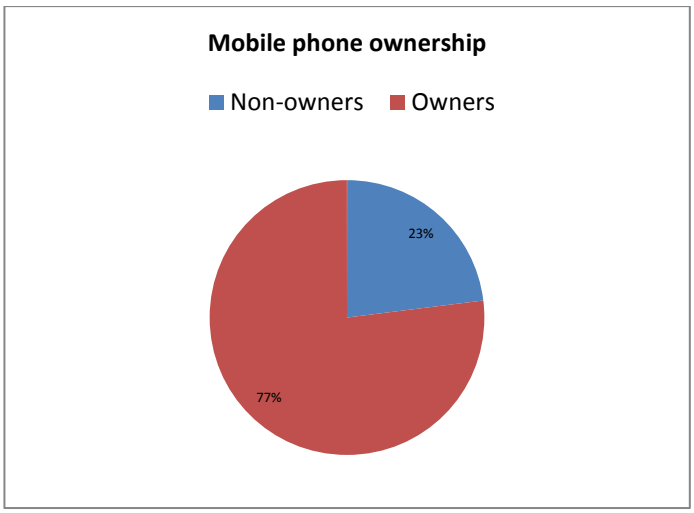

Figure 2.1: Mobile phone ownership of women[4]

Of these devices, a large majority were Internet-enabled. Only about one-quarter were less sophisticated, feature phones (Figure 2.2).

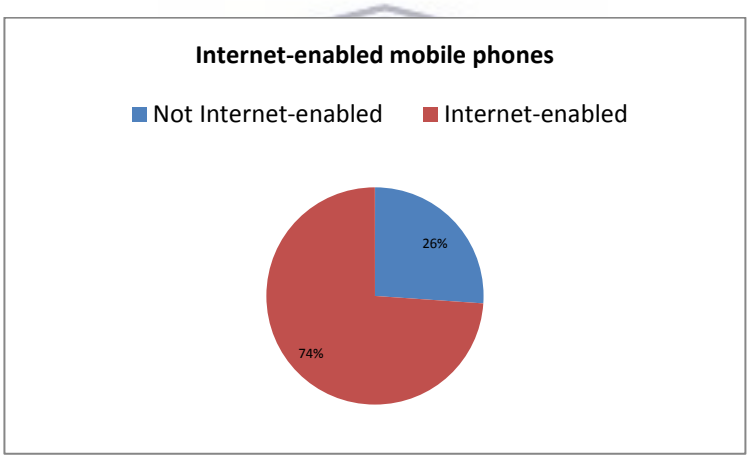

Figure 2.2: Internet-enabled mobile phones owned by women

Owning a mobile phone (either a smartphone or feature phone) was more common among younger women, most so those aged between 25 and 44 years. An even clearer relationship emerged between age and specifically Internet-enabled phones, where ownership of smartphones gradually decreased with each age group (see Appendix D: Figure D.1). A mere 15% of women aged 65 years and above owned phones capable of Internet activity. A pattern also emerged between (overall) mobile ownership and level of education with phones becoming more widespread as education increased (see Appendix D: Figure D.2). A very similar trend was found in the comparison of education and ownership of Internet-enabled phones. Mobile ownership was lower among those not involved in any form of either formal study or paid work and widespread among students/pupils, the

[4] Data presented in all figures in section 2.8 was obtained from Research ICT Africa and re-analysed by researcher.

employed and ubiquitous among self-employed women (see Appendix D: Figure D.3). While general mobile phone ownership was found to be most widespread among self-employed women, the share of these which are Internet-enabled (78%) was lower than that of the employed and students.

The most typical way of acquiring a mobile phone was by purchasing a new device – particularly common among working women. Very few women obtained these devices via entering into a contract and even fewer bought second-hand phones. A relatively small share (13%) of mobile owners had received devices from family members or friends. This was more common among young women (aged 15 to 24 years), students and pupils, the disabled and unable to work and those performing unpaid housework.

2.8.1.2 Access to computers and other devices

Very few women were found to own computers: 6% reported ownership of a desktop and 6% a laptop. At the household level, over 80% of households in the three areas did not have access to a working laptop. This was reportedly particularly low in Khayelitsha where only 5% of households had a laptop. According to Research ICT Africa (2015, p. 75): "A laptop is still very much considered a luxury good." A very different picture emerged with respect to women's access to traditional media, specifically television sets and radios. The former proved near ubiquitous in households in the three areas. Research ICT Africa (2015) inferred from this data that televisions are viewed as a necessity and that there appeared to be a preference for digital media as a recreational activity. While also a popular asset in homes, the radio was found to be slightly less common.

2.8.1.3 Access to the Internet

Given the trend of high rates of mobile ownership and notably low numbers of computers, it is unsurprising that connecting via a mobile phone was by far the most prevalent and in fact near ubiquitous means of accessing the Internet (see Appendix D: Figure D.6). Almost one-quarter of women also used their mobile devices to access Wi-Fi at a public space such as a government building, community centre or library.

2.8.2 Women's use of ICT

2.8.2.1 Frequency of use

Nearly three-quarters of women had never had any experience whatsoever using a computer. Of those who had, relatively few (17%) had integrated these machines into their lives on a daily or weekly basis. Watching television and listening to the radio emerged as highly popular daily

activities. Internet engagement was proven to be far from pervasive as is reflected in Figure 2.3, which illustrates that almost half of women had never been online.

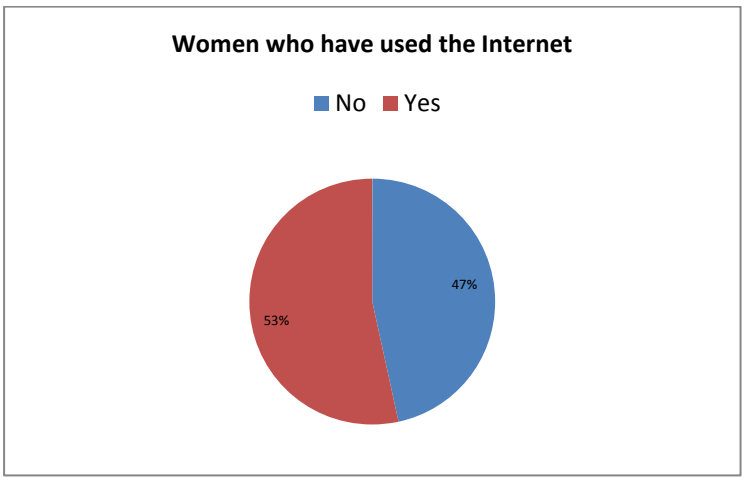

Figure 2.3: Women who have used the Internet

Of the 53% of women who had used the Internet, the far majority were frequent users with 87% connecting either daily or almost every day (Figure 2.4).

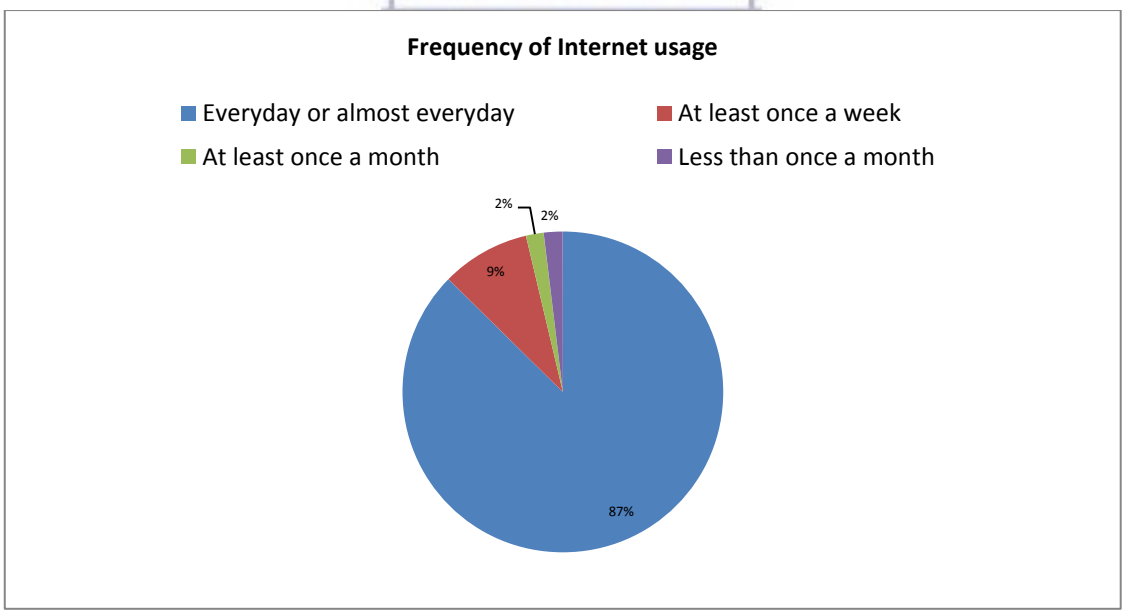

Figure 2.4: Frequency of Internet usage among women who had been online

A very strong correlation emerged between Internet engagement and education. There were significant disparities in the shares of women who had connected to the Internet between women of various levels of education. Few of those with only primary schooling had ever connected to the Internet (see Appendix D: Figure D.4). Having had some form of online interaction was also more common among employed women, students and pupils (see Appendix D: Figure D.5). Extremely few retirees had ever connected to the Internet. It is notable that while the majority of self-employed

women had never used the Internet, 99% of those who had connected were doing so daily. Regarding age, a greater share of younger women had, had some exposure to the Internet and been online at some stage. The share of women who had connected gradually decreased among each older group. Strikingly, no women aged 65 years or older had ever been online.

2.8.2.2 Purpose of use

The survey explored the purposes for which women used mobile phones (Figure 2.5) and the Internet (Figure 2.6). The following is an integrated discussion of the findings presented in these two figures, along with certain other salient findings, which emerged from the survey related to women's use of these technologies. It should be noted that: discussion on women's mobile phone usage refers strictly to the 77% of the total sample of women who owned mobile phones (as seen in Figure 2.1) and; discussion on women's Internet usage refers strictly to the 53% of the total sample of women who had ever used the Internet (as seen in Figure 2.3).

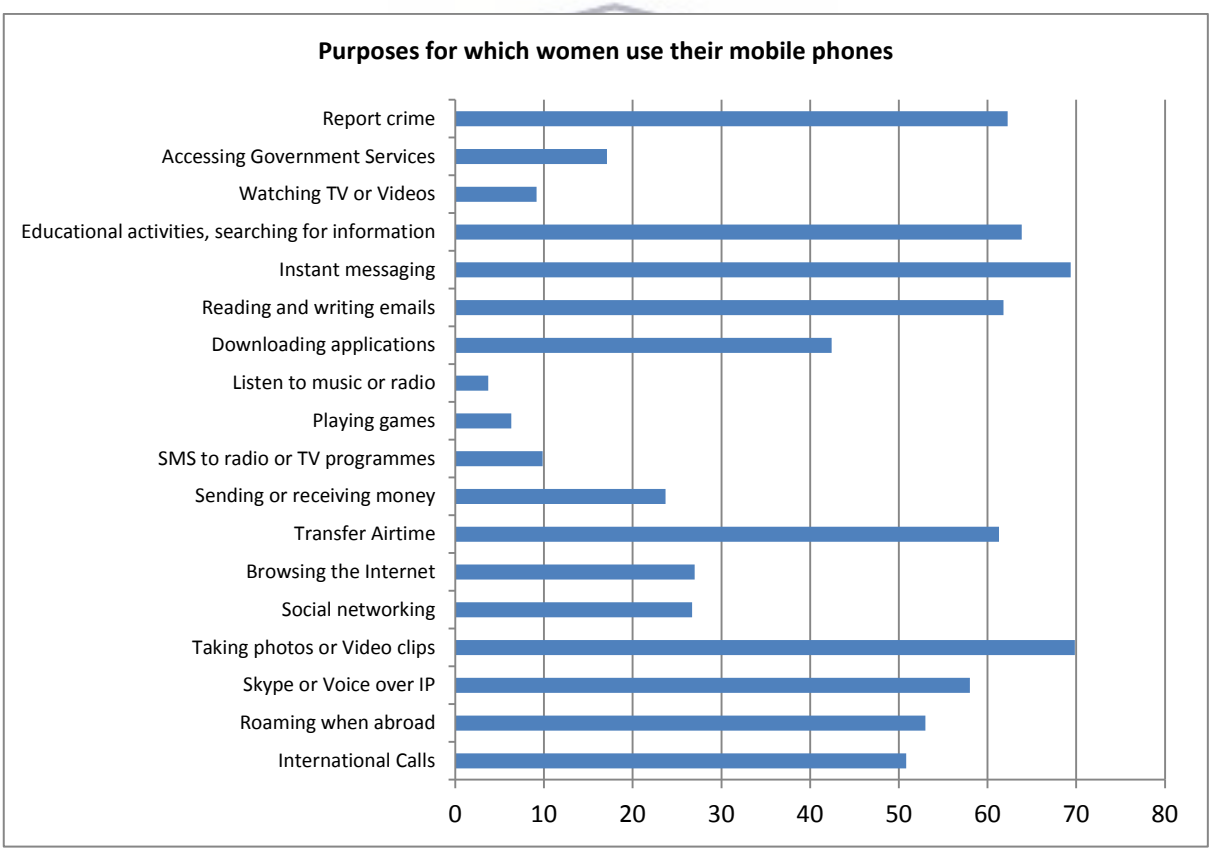

Figure 2.5: Purposes for which women use their mobile phones

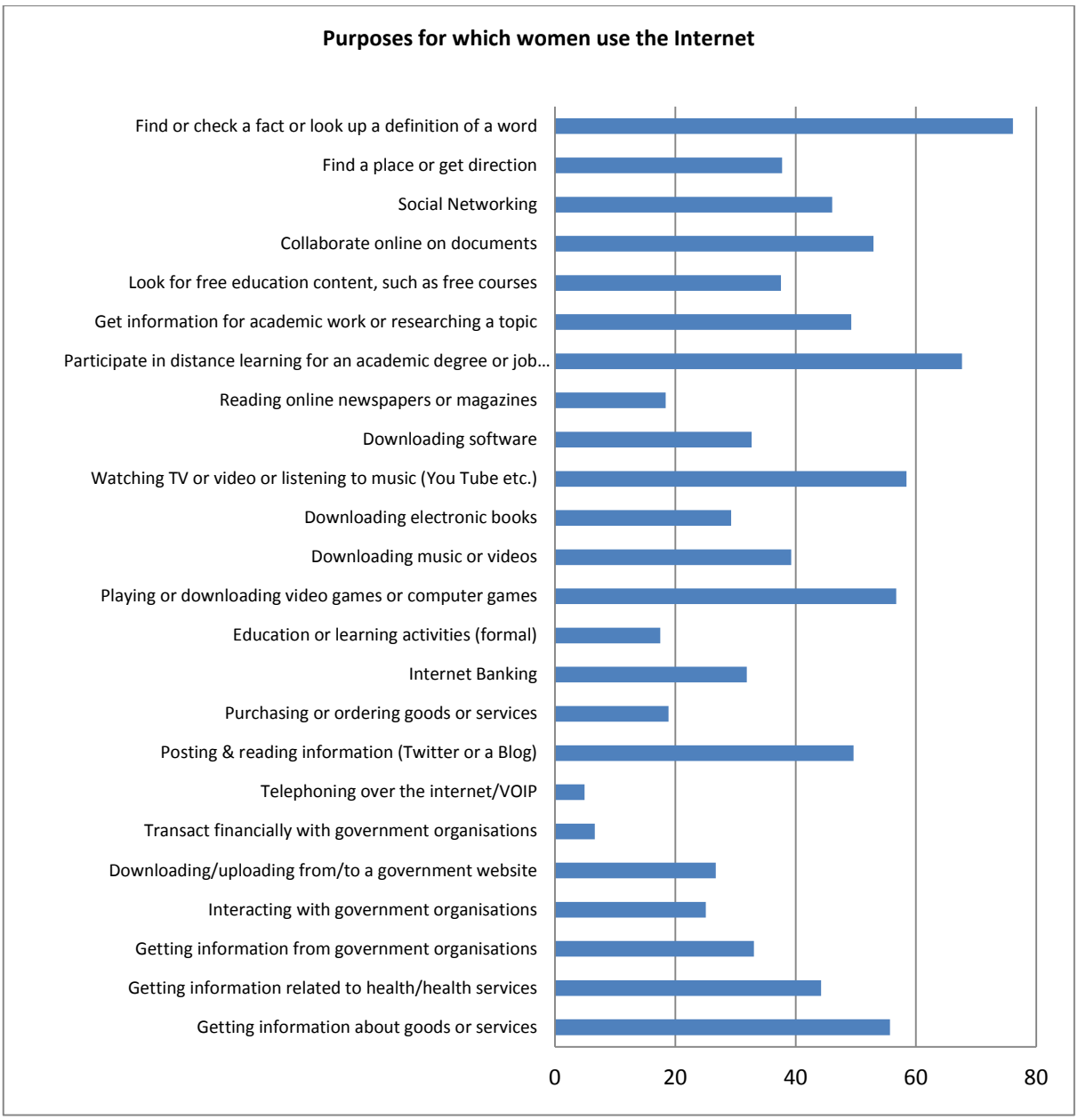

Figure 2.6: Purposes for which women use the Internet

Communication was clearly an important function of the mobile phone for those owning these devices, as instant messaging emerged as one of the two primary uses. Other communicative channels were also employed, though less so than the widespread instant messaging. A significant number of women – 63% – reported that the nature of the phone calls they engaged in were more for business than social purposes. However, generally speaking, socially-oriented ICT activity was revealed to be significant. Nearly half of (the 53% of) Internet users used social networks. This was reportedly the foremost reason for women opting to use the Internet in the first place. The nature of the activity on these social media platforms is somewhat unclear. Given that 'posting and reading' were combined into a single category in the questionnaire, it is difficult to identify whether women

passively acquired information or actively contributed content. It is notable though, that only 45% of Internet users felt free to post or express their opinions on any issue online (while 45.5% did not and 9.5% were unsure).

Much of the value of the Internet for women appeared to lie in its function as an informational resource. This was capitalised on by more than three-quarters of Internet users to seek or clarify facts or definitions. Some women were also using ICT as a source of education and health related information. Women reportedly also used the Internet for other educational purposes such as participating in distance learning for an academic qualification or to seek out free educational content and formal training. Only one-third of Internet users had used ICT to retrieve information from government organisations and accessing online government services was uncommon. Digital financial transactional activities were relatively uncommon among women. Areas in which women tended to be more active in employing their devices were to mobilise the community or for political events, as well as for safety purposes which emerged as an incredibly important function of the mobile phone. It emerged that 84% of mobile owners took comfort in the device allowing them to feel safer. Women typically also appeared to regard the device as an enabler of productivity, with 60% having believed it assists in getting more done during the day and 36% that it saves on travel time and costs. On the other hand, 38% of mobile phone owners considered the device a distraction.

A final significant finding generally related to recreational use of ICT was the report that the most widely used feature of the mobile phone was taking photos or video clips. This was the only activity more common among phone owners than instant messaging – though very slightly so.

2.8.3 Barriers to ICT usage

This section will report on some of the more significant survey findings related to the challenges constraining women's use of ICT.

2.8.3.1 Lack of awareness

Among those who made no use of the Internet whatsoever, the most significant reason, as illustrated in Figure 2.7, was lack of awareness as to what the technology is.

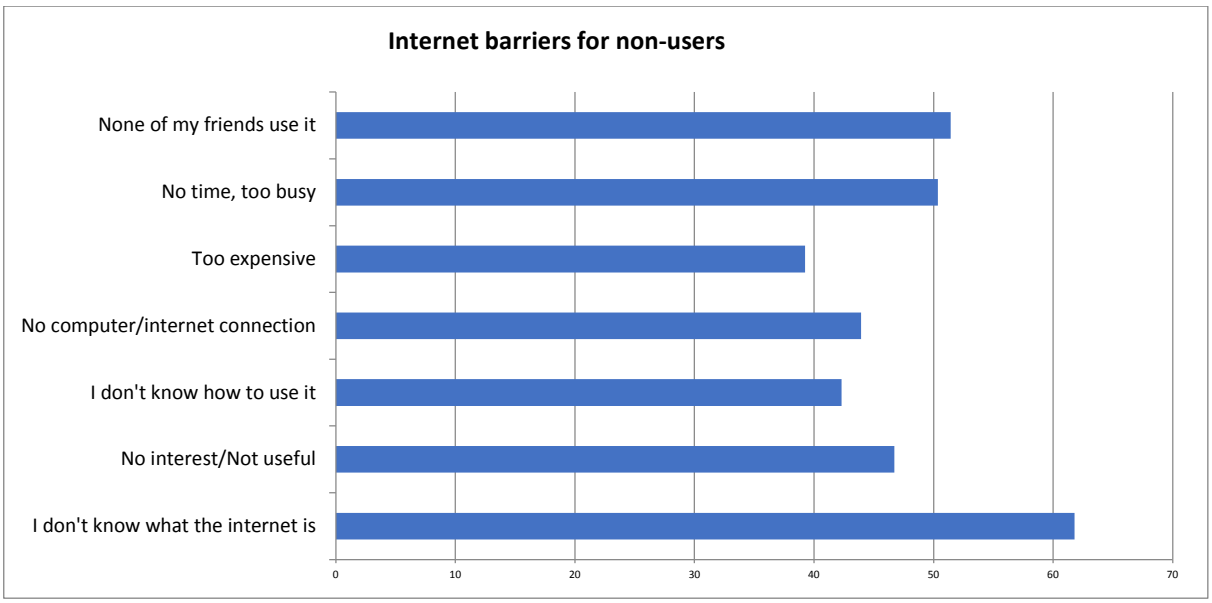

Figure 2.7: Internet barriers for non-users

Education proved to be the most significant indicator of lack of awareness as a barrier to women going online. While the far majority of higher educated women were aware, highly significant numbers of those with up to primary and secondary schooling did not know what the Internet is. Lack of awareness of the Internet was the most significant reason for young women, aged 15 – 24 years, being offline. Over three-quarters of non-users of the Internet in this age category were oblivious to the resource. A marked 88% of self-employed non-users were unaware of the Internet.

2.8.3.2 Lack of skills

Lack of skills emerged as a substantial barrier to women's Internet engagement with 42% of the non-users attributing their non-use to inability (Figure 2.7). This was less applicable to higher educated and young women, and more of a challenge for housewives, retirees and the unemployed. A notable contrast was found between employed and self-employed women. While 36% of the former Internet non-users found skills to be a barrier, this was a challenge for a significant 88% of the self-employed offline women.

2.8.3.3 Lack of interest

Almost half of the disconnected reported that they have no interest in being online and do not find the Internet to be useful (Figure 2.7). This again tended to be less true for the higher educated and again a significant barrier for those not employed in formal work or study. Lack of interest was notably influential in remaining offline for housewives and older women. While a reported general

lack of interest in the Internet was salient in women's decisions to remain non-users, it was relatively insignificant in limiting the usage of those already online (Figure 2.8).

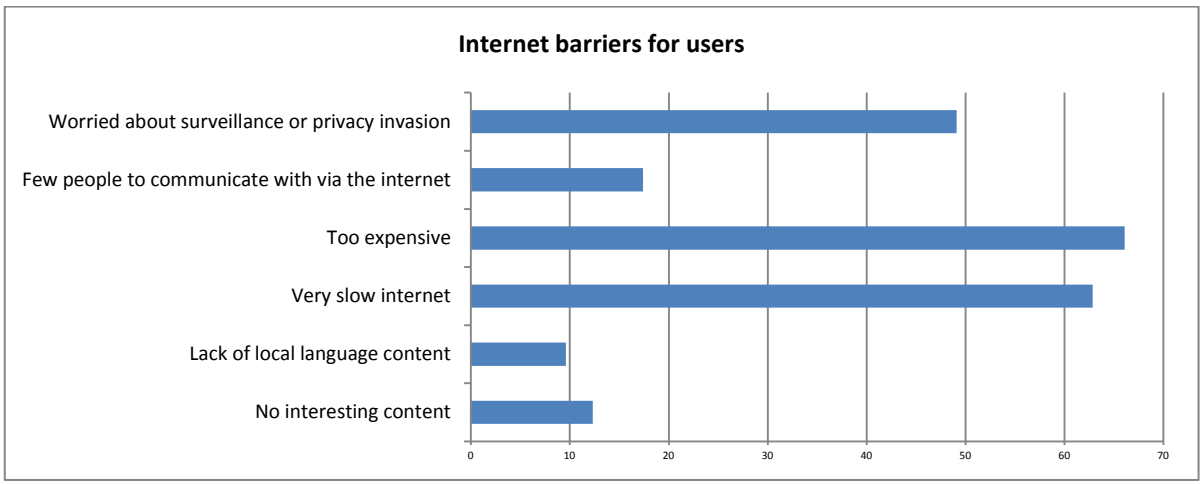

Figure 2.8: Internet barriers for users

2.8.3.4 Lack of time

Just more than half of Internet non-users claimed that they have no time to use the technology (Figure 2.7). Lack of time was found to play a much more prominent role for lower than higher educated women in remaining disconnected. It was interestingly also reported as a reason for remaining offline by a striking 83% of housewives as well as nearly two-thirds of self-employed women – though they did identify other reasons to be more relevant to their non-use.

2.8.3.5 Affordability of ICT

While ICT expenses were revealed to play a significant role in limiting the engagement of ICT users, it appeared to bear less weight in the decisions of the non-users to remain excluded. The expense of purchasing a mobile phone was for example only an inhibiting factor for about 9% of women who do not own such devices (see Appendix D: Figure D.7). For mobile phone owners on the other hand, the costs involved in actually making use of the device notably impeded on the extent of activity. Nearly two-thirds of women reported practicing restraint in making phone calls specifically due to the expense. One of the most concerning factors regarding the monetary issue in ICT engagement was the fact that two-thirds of mobile phone owners admitted to spending more in the use of their devices than they can realistically afford.

The affordability factor was revealed as more significant for digitally excluded women in keeping them from connecting to the Internet (Figure 2.7) than it was in owning a mobile phone. However, while costs to connect might have been a hindrance for a substantial number of non-users of the

Internet who remained excluded, lack of awareness, skills, time and interest were found to bear more influence. On the other hand, for Internet users, the opposite relationship between ICT and expense was true: costs posed the greatest threat to limiting Internet engagement, outweighing all other influencing factors. This is reflected in Figure 2.8, which illustrates that as many as two-thirds of Internet users limited their online activity due to this financial factor. Costs appeared to have had a more substantial limiting impact for Internet users with lower education. It was also problematic for a highly significant 87% of self-employed women.

It is significant that half of women who had never connected to the Internet would be open to doing so were the opportunity available closer to home. Even more women expressed willingness were such nearby convenient access freely available. This alludes to both the challenge of physical access as well as affordability in Internet engagement.

2.8.3.6 Privacy

Women were revealed to be aware of risks and had concerns related to privacy issues in using ICT. Amongst Internet users, half of the women's privacy concerns were significant enough that it constrained their online activity (Figure 2.8). While there was not a significant difference in the privacy concerns of women of different ages, a slightly higher share of those aged 35 years and above considered this to hinder their online activity.

2.9 CONCLUSION

This chapter has provided a comprehensive review of the salient literature related to issues concerning women and ICT, including an in-depth discussion of the complexities of digital gender divides. The chapter concluded with an overview of the findings of the Research ICT Africa survey on ICT access and usage, focusing specifically on the component related to women in Mitchells Plain, Saldanha Bay and Khayelitsha – the areas in which the current study is focused.

CHAPTER 3:

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter documents the research methodology applied in this study. It begins with a discussion of feminist phenomenology, as the theoretical perspective underpinning this study. It then discusses each component of the research design and the processes followed while undertaking the research.

3.2 THEORETICAL PERSPECTIVE

Crotty (1998, p. 8) defined a theoretical perspective as "the philosophical stance informing the methodology and thus providing a context for the process and grounding its logic and criteria". Feminist phenomenology was selected as the theoretical framework underpinning this study. The theoretical perspectives of both phenomenology and feminism, as distinct schools of thought, are broad and complex. This section is therefore not a comprehensive discussion, but rather an overview of some of the relevant salient principles and concepts of each perspective and their inherent epistemologies. Epistemology can be defined as a theory of knowledge, delineating certain assumptions about the social world – "how we know what we know" (Crotty, 1998, p. 8). The discussion of each individual perspective is followed by an overview of how the theories combine in feminist phenomenology, and finally, its applicability to the study at hand.

3.2.1 Phenomenology

Phenomenology can be defined as the study of lived experiences of phenomena from the perspectives of those who experience it (Moustakas, 1994; Van Manen, 1990). It is also concerned with the meanings ascribed to experiences and understanding meaning of aspects of everyday life (Flood, 2010).

> Epistemologically, phenomenological approaches are based in a paradigm of personal knowledge and subjectivity, and emphasise the importance of personal perspective and interpretation. As such they are powerful for understanding subjective experience, gaining insights into people's motivations and actions, and cutting through the clutter of taken-for-granted assumptions and conventional wisdom (Lester, 1999, p. 1).

Phenomenology was originally founded by the German philosopher, Edmund Husserl, as a philosophy and the descriptive (eidetic) approach to inquiry (Wojnar & Swanson, 2007). Husserl's phenomenology was concerned with the study of lifeworld (lebenswelt), defined as "what we know best, what is always taken for granted in all human life, always familiar to us in its typology through experience" (Husserl, 1970, pp. 123-124). The objective was "the rigorous and unbiased study of things *as they appear* in order to arrive at an essential understanding of human consciousness and experience" (Dowling, 2007, p. 132). The researcher's duty was thus "to return the things themselves" where "things" referred to the world of lived experience (Husserl, 1970). Husserl's phenomenology called for exploring phenomena through direct interaction between the researcher and the objects of study (Wojnar & Swanson, 2007). During this process, researchers are required to set aside their preconceptions through what he referred to as bracketing. This entails "consciously and actively seeking to strip away prior experiential knowledge and personal bias so as not to influence the description of phenomenon at hand" (Wojnar & Swanson, 2007, p. 173).

Husserl's approach was modified by many phenomenologists over time, giving rise to much debate on how conscious experience should be studied. While Husserl had advocated for a descriptive phenomenology, in which the experience is purely described as it appeared, his student, Martin Heidegger, stressed the need for interpretation of the experience and understanding it within the relevant context (Wojnar & Swanson, 2007). Heidegger's focus was thus on a hermeneutic (interpretive) phenomenology. He introduced the concept of dasein to express the human way of being or 'Being-in-the-world' – referring to the way human beings exist, act, or are involved in the world (Van Manen, 1990). Heidegger stressed that individuals cannot separate themselves from the various contexts that influence their decisions and give meanings to lived experience. Therefore, "the understanding of individuals cannot occur in isolation of their culture, social context, or historical period in which they live" (Wojnar & Swanson, 2007, p. 174). Given this perspective, Heidegger deviated from Husserl's process of bracketing. Interpretation of an individual's experience was believed to require some prior understanding of the subject (Heidegger, 1962). Heidegger disagreed that researchers could completely eliminate their preconceptions and believed they unavoidably bring with them certain expectations and meaning, affecting their understanding and interpretation. Wojnar and Swanson (2007, p. 175) stated:

> Hermeneutic [interpretive] phenomenology is grounded in the belief that the researcher and the participants come to the investigation with forestructures of understanding shaped by their respective backgrounds, and in the process of interaction and interpretation, they cogenerate an understanding of the phenomenon being studied.

Interpretive phenomenology seeks to interpret contextualised human experiences, appreciates nuance and ambiguity, and is "particularly useful for understanding how context influences, structures, and sustains experiences" (Wojnar & Swanson, 2007, p. 179). This study is thus well suited to the interpretive phenomenological perspective.

3.2.2 Feminism

Feminist theory could be viewed as an umbrella term, consisting of different kinds of feminism and deep theoretical disagreements (Bryson, 2016; Delmar, 1986). Delmar (1986) proposed that a base-line definition which could be agreed upon is that women suffer discrimination based on their sex, that they have particular needs which remain negated and that satisfaction of these needs calls for radical change in the social, economic and political order. Feminist research thus "begins from the premise that the nature of reality in western society is unequal and hierarchical" (Skeggs, 1994, p. 77). In her prominent early writing, de Beauvoir (1953, p. xvi) proclaimed: "She is defined and differentiated with reference to man and not he with reference to her; she is the incidental, the inessential as opposed to the essential. He is the Subject, he is the Absolute – she is the Other." This notion that a woman's position is considered relative to that of man, is suggested as perhaps the very core of philosophical feminism gender difference (Baird, 2012).

Feminist research typically seeks social change and transformation on behalf of women (Doucet & Mauthner, 2006; Fonow & Cook, 1991; Hesse-Biber, 2012). It is said to be better viewed as an epistemology than a methodology or method (Webb & Young, 2005). According to Adam and Richardson (2001, p. 150), epistemology in a feminist context "emphasizes the making of knowledge through the lived experiences of women's lives". Hesse-Biber (2012, p. 3) expanded on what this entails:

> To engage in feminist theory and praxis means to challenge knowledge that excludes, while seeming to include−assuming that when we speak of the generic term men, we also mean women, as though what is true for dominant groups must also be true for women and other oppressed groups. Feminists ask "new" questions that place women's lives and those of "other" marginalized groups at the center of social inquiry.

Different strands of feminism have been recognised, specifically feminist empiricism, feminist standpoint theory and transitional (post-modern) perspectives (Harding, 1987). The earlier two – feminist empiricism and feminist standpoint theory – have often been viewed as opposing one another (Delmar, 1986). Feminist empiricism draws on positivist traditions and research conducted from this stance is thus typically quantitative in nature (Hesse-Biber, 2012). Feminist empiricists

contend that there are no essential differences between men and women and that "it is possible and desirable to use the tools of science to dispel gender stereotypes" (Cosgrove, 2003, p. 87).

Feminist standpoint theory, on the other hand, is informed by a postmodern epistemology, challenges the validity of the positivist tradition in accounting for women's experiences and opts for qualitative research methods (Gergen, 2008). It takes the position that (Doucet & Mauthner, 2006, p. 37):

> … marginalized groups hold a particular claim to knowing. At the core of standpoint epistemology is their assertion that they represent the world from a particular socially situated perspective, which represents epistemic privilege or authority. This epistemic privileging is located in the standpoint of the marginalized or disadvantaged, and all women, regardless of social location, occupy this position.

Standpoint epistemology has advocated how knowledge must begin in women's "everyday/everynight world" (Smith, 1999, p. 5 cited in Doucet & Mauthner, 2006) and that these worlds and experiences must also be located, and analysed within broader social structures (Smith, 1999 cited in Doucet & Mauthner, 2006). In response to criticism that feminist standpoint theory ignored diversity of women in areas such as race, class and sexual preference, the concept of multiple standpoints were later introduced (Harding, 2007).

This study has been informed by the feminist standpoint theory, within the broader feminist school of thought.

3.2.3 Feminist phenomenology

The potential for a union between feminism and phenomenology has only recently been explored. The prior disregard of such a relationship was believed mainly due to a perceived incompatibility between the two schools of thought (Fisher & Embree, 2000; Studlar, 1990). Studlar (1990) explained that phenomenology has traditionally been "a paragon of male philosophical observation", while feminist interests have been in changing an oppressive system rather than contently interpreting it. Phenomenology was thus one of many male-founded schools of thought of which feminists had been critical, perceiving the thinking embedded in them as guilty of male bias. However, an integration of these perspectives can be recognised as early as 1949 and 1953, in the original work of de Beauvoir, who has been credited as contributing one of the earliest expressions of feminist phenomenology – though certainly not labelled as such at the time (Fisher, 2000). Her writing "added to the richness of interpretive phenomenological description, with first person accounts of the gendered character of experience that had been previously neglected in classical phenomenological texts" (Baird, 2012, p.

63). It has since been argued that these claims of male bias in phenomenology can be easily disarmed (Fisher & Embree, 2000). According to Simms and Stawarska (2013, p. 6) a progressive understanding of phenomenology is that "[phenomenology] is feminist as long as it includes questions related to gendered experience and sexual difference within its field of study".

Garko (1999) described how some of the salient values and principles underpinning feminist research are methodologically compatible with phenomenological research. Both perspectives: support the study and understanding of the everyday world of women's lived experiences; give voice to women's own accounts and are committed to openness, description and understanding, so as to avoid misinterpretation and concealment of women's experiences and; are characterised by dialogical relationships between subject and object where meaning is created through intersubjectivity. Today, it is recognised that integrating feminism and phenomenology is not only feasible but can add great richness to investigation (Fisher & Embree, 2000; Fisher, 2010). Langellier (1994, p. 72) succinctly described this union:

> Phenomenology and feminism mutually inform and enrich each other. Feminism encourages the situation of phenomenological analysis of women's lived experiences within the social differences unavoidable in a society built upon inequalities. Phenomenology cautions against merely imposing feminist interpretations on women's lived experience.

More recently, Fisher (2010, p. 94) offered what she viewed as "the real promise of a feminist phenomenology":

> [Each] component contributes something vital, which enhances the possibilities of both. Phenomenology can provide the style for an analysis which retrieves and retains the immediate, vibrant, tangible, and compelling lived experience, and enables our understanding of the phenomena and meanings of this lived experience and situation; while feminist thought and analysis can expand and deepen phenomenological investigation by recalling and insisting on the importance of the lived context, and the multiple aspects, particularities, and dynamics of the social and cultural world, of social and political being in that world, and the necessity of a phenomenological analysis and framing of these phenomena.

3.2.4 Applicability of feminist phenomenology to this study

> In a world where the subjugation of women isn't always disturbingly blatant, but rather exceedingly subtle and hidden from our day-to-day consciousness, buried under layers of deep-seated, calcified assumptions and identities, researchers have to be able to bring these subtleties into consciousness (Smith, 2014, p. viii).

An investigation into the often subtle and obscure ways in which gender may factor into women's experiences with ICT, is fitting with a feminist perspective, which is cognisant of social inequality and

prioritises listening to women's lived experiences as the centre of inquiry. At the same time, the study lends itself to a phenomenological perspective. As explained, phenomenology seeks to understand "what we know best, what is always taken for granted in all human life, always familiar to us in its typology through experience" (Husserl, 1970, pp. 123–124). It is often interested in the mundane aspects of ordinary people's everyday life (Goulding, 2005; Groenewald, 2004). One could argue that ICT has become pervasive in modern society to the extent that it is now one such taken for granted aspect of daily living. Cilesiz (2011, p. 493) contended that "investigating individuals' experiences with established technologies that are seamlessly integrated into their daily lives is especially consistent with phenomenology".

This study involves women in marginalised communities of South Africa, generally considered a traditionally disempowered population group on the basis of gender, race and class inequality (Shefer, 2010). The feminist perspective allows for the study of these women while acknowledging power differentials and the particular socio-cultural context in which they are situated. The phenomenological perspective ensures that attention is given to each individual's unique lived experience (Langellier, 1994). The integration of the two perspectives, in feminist phenomenology, thus strengthens the overall philosophical foundation and allows for a deeper understanding of the experiences and perceptions of women in marginalised communities, with regard to ICT access and usage.

3.3 RESEARCH DESIGN

The objectives of this study were facilitated by a qualitative research approach, semi-structured individual interviews in the collection of data, and the use of Interpretative phenomenological analysis (IPA) in the analysis of data. This is described below.

3.3.1 Qualitative research

A distinction is typically made in research studies between qualitative and quantitative research. Quantitative research falls within the positivist tradition and operates under the assumption that objective truth exists, independent of human consciousness or experience, and that such truth can be revealed through the use of scientific methods (Crotty, 1998). Quantitative studies "emphasize the measurement and analysis of causal relationships between variables, not processes" (Denzin & Lincoln, 2005, p. 10). Qualitative research, on the other hand, assumes that the nature of reality is subjective and socially constructed (Creswell, 2007; Crotty, 1998). Creswell (2007, p. 36) noted that the changing definitions of qualitative research over time is indicative of the "ever-changing nature

of qualitative inquiry from social construction, to interpretivist, and on to social justice". The following definition is proposed:

> Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world … [Qualitative] research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 2005, p. 3).

Qualitative research is thus generally explorative in nature. It is concerned with gaining deeper insight and understanding of complexity in phenomena, and investigating subjective experiences, perspectives and meaning, in context (Banister, Burman, Parker, Taylor, & Tindall, 1994; Creswell, 2007). A qualitative approach is thus highly suited to the objectives and theoretical perspective of this study.

3.3.2 Sampling

The following section describes the research setting and areas in which the study was conducted, followed by an overview of the method of sampling and detailed account of the participants who formed part of the study.

3.3.2.1 Research setting

The research was conducted in the Western Cape province of South Africa, located on the South Western tip of the African continent. According to the most recent provincial survey, it was home to 6.3 million people in 2016 (Statistics South Africa, 2018). Unlike other provinces in the country, the Western Cape has a dominant coloured (47.5%) and Afrikaans speaking population – spoken by over two-fifths (46.6%) of the population when speaking to other household members (Statistics South Africa, 2018). The province consists of five district councils – the West Coast, Cape Winelands, Overberg, Eden and Central Karoo, and one metropolitan municipality, the City of Cape Town.

This study was conducted in two areas within the City of Cape Town municipality, namely, Mitchells Plain and Khayelitsha, and one in the West Coast district, namely Saldanha Bay. As stated in the previous chapter, these areas were selected as they formed part of a provincial survey measuring ICT access and usage in 'under-serviced' areas (believed to have low broadband provision) (Research ICT Africa, 2015). The three areas are noticeably different in their demographic composition, for example in racial demographics, illustrated in Table 3.1 below.

Table 3.1: Racial composition of selected geographical areas (Census 2011 data[5])

Population group	Mitchells Plain	Khayelitsha	Saldanha Bay
Coloured	90.8%	0.6%	55.8%
Black African	7.3%	98.6%	24.5%
White	0.2%	0.1%	18.0%
Indian or Asian	0.6%	0.1%	0.8%
Other	1.1%	0.6%	0.9%

Khayelitsha (population: 391 749[6]) is a partially informal township which was established in 1983, during Apartheid segregation, to house homeless Xhosa families on the Cape Flats (Statistics South Africa, n.d.-a). Thus, over 90% of the Khayelitsha population (which consists almost entirely of black Africans) spoke isiXhosa as a first language during the 2011 national census. Khayelitsha is distinctly different from the neighbouring suburb, Mitchells Plain (population: 310 485), which is a predominantly coloured area with an English (47.4%) and Afrikaans (46.9%) speaking population (Statistics South Africa, n.d.-b). Saldanha Bay is a much smaller municipality with a population of 99 193. It is a predominantly coloured, Afrikaans speaking (70.8%) area (Statistics South Africa, n.d.-c). Another interesting distinction in demographics between the areas is in religious affiliation. In a province with an overwhelmingly Christian (81.7%) population and very small numbers identifying with other faiths or beliefs (Statistics South Africa, 2018), Khayelitsha, has been notable as having a substantial grouping with no religious belief (20.5%) (Erasmus et al., 2003) and Mitchells Plain even more so in that as much as one quarter of the population identified with Islam (Erasmus & Mans, 2003).

The three research areas also differ in terms of economic indicators such as the unemployment rate. According to 2016 data, the unemployment rate of the Saldanha Bay municipality stood at 17% (Western Cape Government, 2017b) while the figure of the City of Cape Town municipality was reported as 11.9% (Western Cape Government, 2017a). However, great variations exist between suburbs within the latter municipality, evident in the last national census data which reported the unemployment rate at 24.13% in Mitchells Plain (City of Cape Town, 2013b) and a highly concerning 38% in Khayelitsha (City of Cape Town, 2013a). The areas are also plagued by social ills common to areas struggling with unemployment, which is reflected in Mitchells Plain and Khayelitsha having amongst the highest crime rates in the province (Crime Stats SA, 2018).

[5] Census data in table compiled from Statistics South Africa (n.d.-a), Statistics South Africa (n.d.-b) and Statistics South Africa (n.d.-c).
[6] According to the 2011 national census

3.3.2.2 Participants

Phenomenological samples are usually purposively selected to allow the researcher to gain insight into a particular experience (Smith, Flowers, & Larkin, 2009). The participants of this study were recruited based on meeting the following criteria:

- **Gender**: Female participants only
- **Geographical area**: Women living in Mitchells Plain, Khayelitsha or Saldanha Bay
- **Language**: Women able to converse in English. This is expanded on in the limitations section in Chapter 6.

Researchers using the Interpretative phenomenological analysis (IPA) approach (discussed in section 3.3.5 below) are advised to select a small sample. Pietkiewicz and Smith (2012) noted that published IPA studies have been observed as using anything within the range of one to 15 participants. Though 15 is generally unusually large for this approach, a larger number of participants (within the mentioned range) provides researchers with more opportunity to explore both similarities and differences between individuals (Pietkiewicz & Smith, 2012). This was an intention of this study, which included 12 participants. Overall, sampling decisions in IPA should be made from the perspective that the focus is on the depth, rather than breadth of the study (Pietkiewicz & Smith, 2012). This study breaks with IPA in a sense, in terms of its advised homogeneity of the sample (Smith et al., 2009). While this investigation was specific in focusing only on women residing in three particular marginalised communities of the Western Cape, it also intentionally aimed to include women of a variety of socio-demographic categories. This was in view of gaining more nuanced insights. The sample was thus intentionally designed to take account of diversity of women in such communities while exploring the phenomenon. The broad spectrum of diversity of the women in a range of categories is reflected in the demographic information of the participants provided in Table 3.2 below.

Specifically, the sample varied in the categories of: *age* – women were between the ages of 19 and 64 years old; *race* – eight coloured and four black women; *education* – one woman had no schooling, one had some primary schooling, three had some secondary schooling, three had completed secondary school and four had obtained a certificate or national diploma after secondary school (none of the participants had a University degree qualification); *employment* – three women were employed, two were self-employed, four were unemployed (one of whom was recently retrenched), one was retired, one studying part-time and one was a homemaker with small street vendor activities; *relationship status* – half of the women were married, two had boyfriends, three were

single, and one had been widowed, remarried and subsequently divorced; *child status* – 10 of the women had children and two had none; and *religious affiliation* – 11 women identified as Christian (though not all necessarily actively practising) while one woman from Mitchells Plain identified as Muslim (reflecting the disproportionately larger Islam population in this particular area).

Table 3.2: Participant demographic information

Participant	Age	Race	Education	Employment	Relationship status	Children
Helga	45	Black	Post-school qualification[7]	Teacher	Married	3
Diane	64	Coloured	Grade 6	Retired	Married	3
Eleanor	51	Coloured	Grade 11	Homemaker with small street vendor activities	Married	2
Iris	30	Black	Post-school qualification	Self-employed	Boyfriend	1
Charlene	50	Coloured	Grade 12	Office (administrative) work	Divorced	3
Grace	21	Coloured	Grade 11	Student	Boyfriend	1
Bongiwe	34	Black	Post-school qualification	Self-employed	Single	2
Jasmine	59	Black	None	Domestic worker	Single	3
Rashieda	36	Coloured	Grade 12	Unemployed	Married	2
Annie	19	Coloured	Grade 12	Unemployed	Single	0
Fiona	58	Coloured	Grade 10	Unemployed (retrenched)	Married	3
Belinda	41	Coloured	Post-school qualification	Unemployed	Married	0

The participants were identified and reached via 'referral' from gatekeepers (i.e. local intermediaries and community workers) and, in three cases, 'opportunities' as a result of personal contacts (Smith et al., 2009). Participants – and anyone they made reference to during interviews – were given pseudonyms, in respect of the ethical mandates for anonymity, privacy and confidentiality.

3.3.3 Data collection

Qualitative research allows for various methods of data collection. Phenomenological studies, seeking to gain insight into perceptions and the meanings attributed to individual lived experiences are particularly well suited to in-depth interviews (Creswell, 2007). This was the method of data collection selected in this study.

[7] This refers to a certificate or national diploma obtained after secondary school. None of the participants had a University degree qualification

3.3.3.1 Procedure involved in data collection

A pilot interview was conducted prior to the main interviews, in order to test the application of the interview schedule. Some of the questions in the interview schedule were adapted based on this initial experience. Additionally, a focus group was conducted prior to the main interviews. This was also not included for analysis or in the findings of this study. The intention of this activity was to gain greater general insight into the subject matter before undertaking the interviews. The focus group discussion topics were broad and related to the subjects of ICT, and gender relations in the community.

Gender relations are a potentially sensitive topic of discussion. For this reason, as well as to attempt to "adapt to the world of the individuals studied" (Fontana & Frey, 1994, p. 371), participants were requested to determine the place and time of the interview. The researcher travelled to each of their preferred locations. The participants' chosen settings included their private homes, a place of work, a school, a church, a local community centre and in one case – given the participant's insistence that it was convenient – the university at which the researcher is situated.

The sessions began by providing the participant with an information sheet and verbally explaining the content, to ensure the information was understood. In most cases, it was discovered that the intermediaries had not adequately informed the women about the purpose of the interview. Many were taken aback when they heard that the subject matter involved "technology" and had a particularly visible reaction at the mention of "computers". This in itself speaks to the participants' perceptions of ICT as an intimidating concept. However, the participants appeared to be put at ease by the explanation that the research is concerned with the ordinary woman's experiences – whether such experience entailed use of ICT or no digital engagement whatsoever was equally valuable information. The participants were then asked if they still wished to continue with the study, which they all agreed to. They were asked to sign a consent form (discussed in the ethical considerations section of this chapter) and for permission to record the interviews with a Dictaphone. They all agreed to this as well. Participants whose mother tongue was Afrikaans were encouraged to switch to this language if they had difficulty fully expressing themselves – though they rarely did so. The interviews then began and ranged in length from about 40 minutes to slightly more than two hours.

After having analysed the data from the first round of interviews, it was believed necessary to conduct second interviews with three of the participants, where additional information was required. During one of these follow-up interviews, a technical error occurred, and the Dictaphone failed to record the session. Given that this discovery was made immediately after the interview had

ended, the researcher was able to recall the conversation and write down the key information which had been sought out. The majority of the interviews were conducted in 2017, with final data collection concluding early in 2018.

3.3.3.2 Conducting the semi-structured interviews

Given the exploratory nature of the study and the need to allow each woman to speak freely, a semi-structured interview was deemed fitting. Reinharz (1992, as cited in Fisher & Embree, 2000, p. 21) contended that the use of semi-structured interviews:

> has become the principle means by which feminists have sought to achieve the active involvement of their respondents in the construction of data about their lives … Some feminists who engage in intensive interviewing label their method "phenomenological interviewing", an interviewee-guided investigation of a lived experience.

As is the case in phenomenological interviews, the questions were "directed to the participant's experiences, feelings, beliefs and convictions about the theme in question" (Welman & Kruger, 1999, p. 196 cited in Groenewald, 2004). In this case, questions related to the objectives of the study and thus focused on the themes of their perceptions and experiences related to ICT (including access, usage and influencing factors) and issues of socio-cultural gender norms in their environments. These areas were explored via open-ended questions, which are suited to phenomenological interviews as they maximise discovery and description, and enable the researcher to access participants' ideas and descriptions (Fisher & Embree, 2000). The interview schedule is presented in Appendix A. Some of the questions could be criticised as "forcing the data" by introducing preconceived aspects of the experience. For example: "Do you feel that the Internet is safe?" or "Do costs of ICT have any effect on your usage?" However, as Charmaz (1995) argued, these questions are necessary to explore aspects of experience that the participant may take for granted, and which may not organically emerge in discussion.

In an attempt to help set the participants at ease, the first question asked was typically 'Can you tell me a little bit about yourself?' The interviewees were treated as individuals with a wealth of knowledge on their own lives, as well as their respective communities. Questions relating to both of these aspects were intentionally posed in order to: a) gain insight into their environments and; b) allow those who seemed nervous to share their own experiences, to grow comfortable in discussion. These were attempts to establish rapport, which Miller and Tewksbury (2001, p. 55) explained:

> Becoming trusted and seen as someone with whom research participants are comfortable spending time, talking and sharing their lives is called 'establishing rapport'. In order for a researcher to truly understand the world, from the perspectives of those being studied and to see how persons being studied think about their world it is critically important for rapport to be established.

Another way in which rapport was established was by approaching the interview schedule as a guide, rather than a rigid, ordered list. Introducing questions where they seemed relevant to the conversation created the feel of a flowing social interaction. Participants were allowed to guide the interviews and digress into unexpected directions. This approach led to considerable (and often unexpected) insight on the research topic. Participants were given ample time to express themselves and care was taken not to use potentially unfamiliar terminology.

These techniques also relate to the attempt to minimise the traditional hierarchical nature of interviews, where the respondent is in a subordinate position (Fontana & Frey, 1994). Fontana and Frey (1994, p. 369) argued that the traditional style of interview in which the interviewer is friendly and pleasant, yet closed off to voicing opinions or answering questions, was simply "a ruse to gain the trust and confidence of the respondent without reciprocating in any way … What seems to be a conversation is really a one-way pseudo-conversation." Female researchers, in particular, have been increasingly reluctant to follow this approach whereby women are interviewed as "objects" (Fontana & Frey, 1994). Oakley (1981, p. 49) pointed out that in interviewing, there is "no intimacy without reciprocity". The attempt to "treat the 'other' as a human being" (Fontana & Frey, 1994, pp. 373-374), by acting as a human being (including answering questions), is not only a moral and ethical issue but a methodological one, as this approach is reported to provide a better spectrum of responses and greater insight (Fontana & Frey, 1994).

3.3.4 Data management

As explained above, the interviews were recorded and the recordings subsequently transcribed. The first three transcriptions were done by the researcher. Being cognisant of time constraints – and given the number of participants, interviews and the length of the recordings – the decision was made to employ a professional to complete the transcriptions of the remainder of the recordings. The researcher then checked each of the received transcripts against the audio recording to ensure their accuracy.

The data was stored on the researcher's computer and imported to the qualitative analysis computer software, ATLAS.ti – which the researcher had been trained to use. The coding and data analysis process (described in the section below) was completed through the use of this software.

3.3.5 Data analysis: Interpretative phenomenological analysis (IPA)

In keeping with the objectives and theoretical perspective of the study, the IPA approach was chosen in the analysis of data. IPA attempts to explore personal experience from the perspective of the person experiencing it. It is interested in an individual's personal perception or account of an event or object (Smith et al., 2009; Smith & Osborn, 2007). At the same time, it is cognisant that these experiences and the understandings of these experiences occur in a particular social, cultural and historical context (Shinebourne, 2011). While the research approach originated in the field of psychology (relatively recently, in the 1990's), it has since expanded to other disciplines.

As an approach to qualitative research, IPA has a particular philosophical underpinning. The three theoretical perspectives central to IPA will be briefly outlined, followed by a more detailed discussion on how the IPA method of data analysis was applied in this study.

3.3.5.1 Theoretical underpinnings of IPA

IPA draws from three philosophical schools of thought: phenomenology, hermeneutics and idiography. Smith et al. (2009, p. 37) described the relationship between phenomenology and hermeneutics (the study of interpretation) in IPA as follows:

> IPA requires a combination of phenomenological and hermeneutic insights. It is phenomenological in attempting to get as close as possible to the personal experience of the participant, but recognizes that this inevitably becomes an interpretative endeavour for both participant and researcher. Without the phenomenology, there would be nothing to interpret; without the hermeneutics, the phenomenon would not be seen.

Idiography is the investigation of the particular rather than the universal. This requires a researcher to thoroughly explore the experiences of each individual before making any general claims (Pietkiewicz & Smith, 2012). This is in contrast with the nomothetic approaches in most research, which focus on making claims for groups.

IPA is grounded in the assumption that experience can be accessed through interpretation. In this regard, Smith et al. (2009, p. 3) explained that "the IPA researcher is engaged in a double hermeneutic because the researcher is trying to make sense of the participant trying to make sense of what is happening to them". Individuals are viewed as experts of their own experiences. At the same time, the IPA researcher can approach the narratives critically by asking questions such as: "What is the person trying to achieve here? Is there anything meaningful being said here, which was not intended? Do I have a sense of something going on here that the person himself of herself is perhaps less aware of?" (Pietkiewicz & Smith, 2012, p. 362) It is through such a dynamic process of

interpretation that sense is made of the subject's personal world (Pietkiewicz & Smith, 2012). The intention of IPA is to unravel meanings in an individual's experiences in a systemic way (Smith et al., 2009). As such, the goal is to gain in-depth understanding of the meaning of a phenomenon and not to induct theory. The IPA approach is thus believed well suited to the objectives of this study.

3.3.5.2 Analysis

Shinebourne (2011, p. 57) described the method of analysis in IPA as "an iterative, complex and creative process which requires the researcher's reflective engagement in a dialogue with a participant's narrative and meanings". IPA calls for the researcher to engage in an interpretative relationship with the transcript to capture meaning, which is not always transparently available (Smith & Osborn, 2007). Smith and Osborn (2007) have outlined the step-by-step stages of the method of analysis, while noting that this is not prescriptive and is open to adaptation by the researcher. These steps, which have been followed in this study, are described below.

- ***Looking for Themes in the First Case***

The analysis begins with multiple readings of the first transcript. During this process, comments are made in the left-hand margin to note what is significant or interesting about what the respondent said. This process is flexible and could include summarising, drawing connections, noting contradictions or making preliminary interpretations. The researcher then creates emerging themes in the other margin, based on the initial comments. The wording of the themes should allow one to draw theoretical connections while still be grounded in the particularity of the text.

- ***Connecting themes***

Once all of the emerging themes in the transcript are listed, the researcher begins a process of looking for connections between these themes. Smith and Osborn (2007, p. 70) described this as an "analytical or theoretical ordering" of themes. During the process of clustering the themes, the researcher should check the transcript to ensure that the connections correspond with the raw data (the words of the participants). Smith and Osborn (2007) suggested compiling directories of the verbatim extracts correlated with the relevant theme. As noted in the previous section, this directory of themes and verbatim extracts was compiled using the qualitative computer software. Finally, each cluster of themes is assigned a name – i.e. a superordinate theme.

- ***Continuing the Analysis with Other Cases***

If the research project includes more than one interviewee – as is usually the case – the process of analysis then begins with the following transcript. The researcher should recognise both the similarities and differences which emerge. Smith and Osborn (2007, p. 73) stated that "one needs to be disciplined to discern repeating patterns but also acknowledge new issues emerging as one works through the transcripts". Once the researcher has completed the interpretative process to analyse each transcript, a final table of superordinate themes is created. This can be a trying task as it involves reducing and prioritising the data. Themes should be chosen based on factors such as their prevalence in the data and the richness of the corresponding passages in the transcript. The superordinate themes and clusters produced in this study are listed in Table 3.3 below.

Table 3.3: Superordinate themes and clusters

Access to ICT	Mobile phones Computers Internet
Purposes of ICT usage	Maintaining social connections Business or professional use Educational resource Informational resource Services and safety Citizen participation and mobilisation Recreation Cultural, emotional and spiritual needs
Factors influencing ICT access and usage	Ability, confidence, learning and support Affordability Interest, perceived relevance and awareness Availability of time Literacy Resistance from a male partner Environmental constraints Concerns and negative perceptions Gendered identities, norms and perceptions

- ***Writing up***

The final stage of IPA entails the researcher moving from the final themes to the write-up of a report which conveys the meanings of experiences, which were uncovered in the research. The analysis will typically be expanded during the writing up process. This stage of IPA entails translating the themes into a narrative account, which are rich with supporting verbatim extracts. Smith and Osborn (2007) have outlined two broad IPA presentation strategies. One makes a distinction between a 'results'

section, which presents the emergent thematic analysis, and a 'discussion' section, where the analysis is related to the reviewed literature. The second strategy combines these sections.

This study has opted to employ the first presentation style, with a distinction between the research 'results' (Chapter 4) and 'discussion' (Chapter 5) sections. However, given the flexibility allowed in an IPA approach, the structure of this study's results chapter differs from the typical IPA report in that the account of each individual participant has been reported on as a distinct narrative. This allows the reader a more in-depth and contextualised account of the experience of each individual participant, thus enriching the idiographic engagement before moving to a thematic discussion in Chapter 5. This has also allowed for the emergent themes to be discussed in a unique order in each narrative, which fits the particular experience of each participant. Themes are thus only discussed in the cases in which they were relevant. Presenting the findings in this manner may also partially counter a criticism of IPA, i.e. that its thematic presentation of data means losing "the richness of seeing how an individual's story naturally unfolds" (Tomkins & Eatough, 2010, p. 255).

3.3.6 Validity and quality of research

Yardley (2000) offered useful guidelines for assessing validity and quality in qualitative research. This approach provides broad-ranging criteria, which are applicable irrespective of the particular theoretical orientation of the qualitative study. She outlined four key principles by which the quality of qualitative research can be assessed:

a) Sensitivity to context
b) Commitment and rigour
c) Transparency and coherence
d) Impact and importance

Being sensitive to context can include being considerate of the socio-cultural research setting in which the study is situated, the material obtained from the research participants, and the relevant literature. Sensitivity to context should occur throughout the research study particularly in interacting with the participants and in taking care in the analysis of data. A strong IPA will be sensitive in dealing with the raw material and present a substantial number of verbatim extracts to support the argument being made, "thus giving participants a voice in the project and allowing the reader to check the interpretations being made" (Smith et al., 2009, pp. 180-181). Sensitivity can be shown in taking caution to keep the claims made to the sample and not the broad population.

Commitment and rigour entail in-depth engagement with the topic, ensuring that the interviews are of good quality, and being thorough in data collection and analysis. In IPA, this requires ensuring considerable interpretation in analysis and sufficient idiographic engagement. Transparency refers to the level of clarity which the researcher has shown in describing each stage of the study (for example, participant selection, data collection and analysis). Coherence refers to the research being presented in a sound and logical analytic report. Smith et al. (2009) explained that this can be achieved by presenting a coherent argument, structuring themes logically and articulating ambiguities in the data. Yardley (2000, p. 222) noted that coherence also "describes the 'fit' between the research question and the philosophical perspective adopted, and the method of investigation and analysis undertaken". Finally, Yardley (2000, p. 223) argued that the "decisive criterion by which any piece of research must be judged is, arguably, its impact and utility". The real test of validity of qualitative research lies in whether a reader finds it important, interesting or useful (Smith et al., 2009).

In accordance with these guidelines, the researcher has attempted to produce validity and quality during the process of this study in a number of ways. Care was taken to be mindful in the treatment of each participant and prioritise putting them at ease during the interviews. The researcher was immersed in the interview, listened attentively and attempted to give voice to each woman's experience. This is reflected in the extensive verbatim quotes, presented in the results chapter. This allows the reader to see the direct link between the participants' own expressions, and the interpretations and findings of the study. The style of presenting the results – in which every participant's experiences are individually accounted – shows the considerable focus to idiographic engagement before moving to themes. The results and discussion were also revisited to ensure that they accurately reflected the raw data. The claims made in the study have not been generalised to the broader population.

Given the researcher's limited experience in conducting extensive interviews from a feminist phenomenological perspective, a pilot interview was believed useful to become more familiar with particular interview techniques, as well as to test the application of the interview schedule. During the interviews, effort was made to remain consistent in probing and picking up on cues. However, in cases where it was believed that this had not been sufficiently done – in other words, where the "thoroughness" of data collection entailed in the rigour criterion (Smith et al., 2009) had not been satisfied – follow-up interviews were conducted. This chapter has attempted to bring transparency and coherence to the study by documenting each of the stages of this research project, as well as the salient decisions made and the 'fit' between the selected theories, approaches and methods. It is

hoped that this report will be useful and have impact, particularly on women in marginalised South African communities.

3.3.7 Ethical considerations

Fontana and Frey (1994, p. 373) made the noteworthy point that, "as field-workers we need to exercise common sense and moral responsibility, and, we would like to add, to our subjects first, to the study next, and to ourselves last." They identified three main issues in the ethical considerations of research: informed consent, right to privacy and protection from harm. As noted in an earlier section of this chapter, all participants were provided with an information sheet (see Appendix B) and the details of the research were carefully explained. During this process, they were informed that their participation in the study was voluntary, could be withdrawn at any time and that their identities would remain anonymous. The anonymity of each participant was maintained through the use of pseudonyms. Participants were also informed of their right to stop the interview or request that the researcher move to another question if they felt uncomfortable. Following this explanation, they were asked to confirm that they were still willing to participate and then requested to sign a consent form (see Appendix C). Both the researcher and the participants have signed copies of these agreements. It should be disclosed that women were given a token of appreciation for participating in this study in the form of a small shopping voucher.

Some of the important ethical considerations relevant to the study have already been highlighted earlier on in this chapter, including the inherent power relations in interviews and the tendency to treat participants as "objects". In keeping with the principles of feminist phenomenology, the researcher remained sensitive to these issues.

3.4 CONCLUSION

This chapter has explained the qualitative research approach followed in this study. It has outlined the principles of the feminist phenomenological theoretical perspective, which has guided this study and how this relates to the methods of data collection (semi-structured in-depth interviews) and data analysis (IPA). Finally, the ethical issues which were considered throughout this research were explained.

CHAPTER 4:

RESULTS

4.1 INTRODUCTION

This chapter presents the findings of the empirical investigation of the study in the form of a comprehensive portrait of each individual participant. These narratives are structured as follows: a) a contextualisation of the particular individual; b) the experiences of digital engagement (ICT access and usage); c) the factors influencing, underlying or related to digital engagement and; d) the woman's understanding and perspective – mental model – on the concept of gender and its potential intersection with or influence on ICT.

4.2 PRESENTATION OF PARTICIPANT PROFILES

4.2.1 Helga

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Khayelitsha	45	Black	Post-school qualification	Teacher	Married	3

Originally from the Eastern Cape, 45 year-old Helga along with her husband and three sons relocated to Khayelitsha in the Western Cape where they have lived for seven years. She maintains close ties to her home province, particularly with her elderly mother who still lives there. Helga teaches the first grade at a primary school in a town about 10 kilometres away from home. Although the journey takes her an hour on public transport, she is resigned to this means of travel. Her current qualification is a Junior Primary Teacher's Diploma and she is in the process of pursuing an additional certificate to obtain a four year qualification.

Helga's three children differ quite considerably in age: the elder of the two recently started university, while the six year-old still requires a great deal of Helga's daily care and attention. Her evenings after work are divided between childcare, domestic chores and preparing her lesson plans for the following day. As a highly active member of her church and chairperson of the council, Helga

teaches classes of the catechism, attends a number of services over the weekend and then often visits elderly members of the church community.

- ***ICT access and usage***

Helga has integrated ICT into many areas of her personal and professional life. As the owner of a smartphone and a laptop, she considers herself one of the exceptions in her community where most computer users are resigned to visiting an e-centre to gain access to such a machine. Her first mobile phone was a gift from her husband in an effort to maintain communication in their then long distance relationship. Since then, Helga has grown accustomed to and dependent on mobile devices, stating, "Sjoe! I will be sick, I really can't cope without my phone. Even if I'm going to work and then I left by mistake, I just come back and fetch my phone." Considering the lengthy trip to work by public transport, this is a particularly significant indication of her dependence on her mobile phone. Helga currently makes her own phone selections and purchases and enjoys keeping up with recent developments (in new phone models). While taking delight in upgrading her technology, she most values the mobile phone's most basic function, namely making phone calls, which she does daily to maintain her close-knit relationship with her mother in the Eastern Cape: "My mother is staying alone in Grahamstown. And she's very old. So, I will miss her part [if I don't have a phone] you see? And I won't feel comfortable because I phone her most – almost four to five times [during] the day." The high frequency of this telephonic communication underlies her substantial monthly mobile credit purchase of R255.

Helga's preferred means of digital communication is, however, not the phone call but instant messaging via the online text-based platform WhatsApp. It is in this manner that she stays connected with most of her social circle. Instant messaging might well have replaced much of the telephonic conversations with her mother (and thereby the credit expense) were it not that the older woman is apparently "not aware" of such technological platforms. Helga has also integrated instant messaging into her professional work, using a designated WhatsApp chat group as the primary means of communication between her and the parents of her learners. As well as conveying general information to parents, the platform has also assisted in overcoming common challenges as a teacher. For example, after experiencing trouble with learners not completing homework, Helga opted to use the text-based platform to communicate the daily assignments directly to the parents:

> I send everything there. Sometimes I give my learners the homework. You know our children, they are very lazy. Sometimes they will say 'no, we don't have homework, Mummy'. Mummy doesn't know anything. So, she will say okay, it's fine. So, I let them know on the WhatsApp that today, our homework is the home language, it's this sound or it's this and that. Or it's maths, we have to do the doubling or the halving.

She has also found it to be useful in times of unexpected local challenges. During a recent water crisis when the school environment was deemed unsuitable for children, the class' WhatsApp group was used as a convenient means of contacting parents to make alternate arrangements to collect their children:

> […] most of the children, they are dropped by the transport. So, now I let their parents know that now we have this disaster, we don't have the water, will you please send someone to fetch your child because there will be no school for the children […] So, [ICT is] very important, it's really helped us a lot in the other side of the world.

By establishing this application as the first line of communication with parents, she has influenced some non-users to participate digitally in order to be included in any conversations concerning their children. In addition, she encourages parents to visit particular websites to assist with homework, while still accommodating those opting not to do so by providing printouts:

> I meet them while they are having the WhatsApp, but some – once I've explained to them, then they, those who don't have, they will have the phones now that they have the WhatsApp's.
>
> I also give them the work – I mean, the web page where they can get help for their children. But some, they are not aware of the internet. So, sometimes I get the worksheet, then I give it to the children. Then they help the children at home.

Helga also capitalises on the Internet as a source of information to search for content to incorporate in lessons for her young learners, for whom the wealth of sounds and imagery online are particularly useful:

> [I]f I'm teaching this sound – the 'd' […] I have to teach them about the picture […] I have to go to the internet to print out […] They have to see […] oh, this is the dog. How do we write dog? D-o-g. So, it's like that when I'm using the internet for teaching […] Sometimes I'm using my laptop, bring my laptop to school, then I – they listen to the sound that the animals are making.

Her personal laptop is thus used in her teaching to create worksheets which are then printed out. However, for the most part, it appears that her daily operations as a teacher continue to be performed via a pen and paper system in an exercise book. Although at the end of the year, a final digital document (Excel spreadsheet) is created with the overall results, it is these (hand-written)

exercise books which serve the critical role of providing evidence of learners' progression during the year and which may be called upon by the Education department. As such, Helga still conducts a great deal of her work offline:

> I have an exercise book where I tick those who knows and then put a dot for those who are in the middle and then the triangle for those who doesn't know […] Maybe the child, get maybe an injury or she's not able to write the exam. So, I have to go to that book and see which mark can I give this child for the assessment or for test for the exam at the end of the year. Sometimes the department is saying that this child must go up because of the mark while I'm saying this child must stay behind, ne? So, I have to have the evidence [...] And here is my evidence, here are the books and here is my continuous assessment […] I have to write that thing down every day for each subject.

Helga's fondness for older mediums is also apparent in her use of the television both as a source of news and also preferred form of entertainment. Using the Internet for retrieving such information appears to be largely reserved for when she is away from the home (and therefore the television). She rarely consumes online video content purely for enjoyment, with the exception of the odd cartoon – partially for her own pleasure as well as her feeling that her children and pupils would relate to this. While ICT is not capitalised on much for leisure, Helga does view her mobile phone as a means of relaxation and stress relief: "You can also maybe if you want to relax, play the games on the phone just to cool your nerves down."

Helga has had a Facebook account for two years and estimates her frequency of use as about once a week. Her social media engagement is mainly aligned to the online activity of her church which has become very active via its designated Facebook group used for general communication, prayers, bible discussions and organisational purposes: "[W]e have the group in Facebook […] we pray there. We do the bible discussions […] and sometimes we also organising the meetings like in George or in Knysna." Beyond this, Helga's Facebook activity is limited and passive in nature. She never uploads content and typically reserves commentary to her husband's posts. The platform is somewhat useful in allowing her to keep track of a few people "that are not the Catholics. Maybe the ladies that I was with them at school, in the college or in the High School. And my kids' friends, I'm also friends of them."

- ***Influencing factors in ICT usage***

Lack of time

The primary challenge for Helga in increasing usage appears to be a lack of time. Her Xhosa culture strongly dictates that women perform the household and childcare duties, which occupy a

substantial amount of her daily time: “Sometimes [my husband] will say ‘No, you are the mommy and I’m the daddy’ […] In our culture, the mother is the one who’s doing the chores in the house. And you have to teach your children, not the man.” This is expected of her in addition to working a fulltime job, which she notes was not a burden faced by her mother’s generation:

> [O]ur parents, like my mother, she don’t know how to work for – she don’t know how to wake up in the morning to go to work. She was not working. It was our father who was working. So, she was at home from the morning up until the evening. So, everything when we come home, everything is done for us because my mother is always there. It’s not like us [women today]. In our life, we’re all busy. I am working, he is working. But he expect everything to be done by me. How come? How possible is that, you see?

The weight of the combination of these daily responsibilities leaves her tired and with little free time for substantial ICT engagement:

> Sometimes I feel I don’t have enough time. Because sometimes I go to sleep before I finish everything and then when I put my – when I lay on the bed, I will say oh, I didn’t do this. I have to go and check on the computer this, you see? So, the time is shorter.
>
> It’s not equal. Because when I’m looking at my husband, he’s got more time in his laptop than me. Because if I’m busy cooking or bathing the child, he’s on his laptop doing his own stuff. I don’t have that time. And when it’s my time, it’s maybe 2 to 3 hours. Then I said ag, I want to sleep now, I’m tired. And he will still sit with his computer.

The disparity in daily activities between her and her husband is evident to Helga in comparing their ICT usage patterns. The hours of her time dedicated to household and childcare responsibilities constitutes free time for him which he elects to spend predominantly on ICT engagement. She typically finds herself so tired after completing these tasks, after a full day at work that she prefers to sleep rather than spend time on her phone or computer for leisure. In effect, a lack of time due to her wide range of roles and responsibilities seems the most significant constraining factor on Helga’s ICT usage and is particularly evident in comparison to her husband, who is also a teacher, yet has significantly more free time.

Ability and confidence

While initially claiming to be completely comfortable and confident in engaging with ICT, Helga revealed some insecurity in performing the digital tasks required of her as a teacher (which is in fact relatively little): “… the importing is the thing that I’m still scared of doing it. Because if I did it wrong, it will mess all the recording sheets of the Grade 1’s.” Fear of incorrectly completing the task leads her to take great precaution and rely on the expertise of someone else rather than making an attempt on her own, evident in her statement: “I don’t want to be the first example. I really don’t

want to". Her main sources of assistance are her husband and the principal of her school, both of whom are willing in providing guidance and instruction. The following extract is a fitting illustration of her process of learning:

> I want someone who can make it right for me for the first time […] But now I'm learning how to do it. So, like now, I'm busy with typing the comments for the reports. What I've did, I've got two copies. The other one is the one that I am going to try to import, and the other one is the one that I know I don't touch that one, except [the principal], Mr Adams.

This example also illustrates a clear effort and interest by Helga to improve on her ability, which she explicitly states: "I'm very interested in the computer. I want to learn more about it."

Concerns and negative perceptions

Helga has a deep distrust of the Internet, which currently prevents her from capitalising on certain technological advances like Internet banking: "I do have internet banking, but I don't use it because I'm scared of the scams […] I don't trust." She has had exposure to protective privacy measures given her husband's frequent use of Internet banking. However, this has not swayed her to personally engage in such activity. Social media is another area where negative perceptions influence Helga's usage, with her dislike evident in repeated declarations like "I really don't like Facebook". Her rationale being: "[B]ecause most of the things on there, oh! There's fighting; people are very rude." Other unpleasant experiences have also contributed to this aversion, for example unwanted attention from strangers via private messages to her inbox, hacking of accounts and exposure to pornographic content:

> The men that they are looking for the girls. It's those stuff […] it is a common thing. Because even if I spoke to the others, they also have this. Then I've blocked people like that. I'm really not in with that.

> [T]here is also these things that they are doing. Maybe they steal my account, and then they will do bad things on there. Sending people or my friends the videos, the 'funny' videos and all of that. You see? It's not really safe […]. I saw one, my husband send it to me. Then when I ask him, he didn't even know about that.

Helga directly correlates such hacking of accounts with her low frequency of use, stating: "If the Facebook was not like that now, hacking the people's account, I would use it more." Given her aversion to the application, it appears likely that her already highly limited usage may be far more infrequent were it not for the substantial activity of the church (in which she plays a leadership role) on this platform. In fact, she has attempted to persuade the members to move their current Facebook interaction to WhatsApp, where she is clearly more comfortable: "I say to the group that I

am in, in Facebook, let us do the WhatsApp group and then we can communicate in the WhatsApp group. Because I really don't like Facebook." Despite her view of the platform as consisting of many "rude people", Helga does recognise certain positive elements in its potential to increase communication with diverse people and improve personal communication skills: "[T]here are more things that you can learn and you mix with different people. So, it also teaches you how to communicate with the people […] Sometimes it teaches you how to make your speech in the public, you see?" However, these perceived positives are precisely the type of activities Helga deliberately avoids in that she is greatly opposed to communication with anyone she does not personally know and severely limits her self-expression online.

Resistance from partner

Helga generally considers herself free to do as she wishes when it comes to her own devices. However, she does face some opposition from her husband at times in the form of him questioning her use of her phone or computer, or attempting to examine her activity. This questioning is always one-sided, even though her husband's frequency of usage far outstrips hers:

> Sometimes my husband also have a problem. If I'm on the computer, most of the time he will ask me, what are you doing here? He wants to see what I'm doing, but I don't go and ask him when he's busy on the laptop or on his phone. But if it's me, he will ask.
>
> Sometimes he'll take my phone and then I will see him fiddling. I don't know what is he doing. When I ask him, he will say no, I'm playing the games. But we are using the same phones, the S5. He also got the S5 […] But he will say no, I'm just playing this game.

His resistance to her ICT usage may be partially rooted in suspicion of the possibility of extramarital affairs/communication: "I don't know whether maybe he thinks that I'm chatting with the boyfriends. I will put it that way, I don't know. But he will [check] – that is why I don't, I only have WhatsApp, Facebook. I don't have Instagram and the other stuff." The opposition also appears related to her husband's disapproval in how Helga chooses to spend her time – he would seemingly prefer she occupy her time with domestic and childcare tasks: "[S]ometimes he's saying that 'you're supposed not to spend so much time on the computer. You're supposed to sleep now.' Or 'you're supposed to work with the children.'"

Affordability

Helga considers using the Internet to be expensive and this is a key reason for significantly limiting her use of data-intensive activity like consuming video content: "YouTube is taking a lot of money. Data bundles – no". She also claims that her use of the Internet in general would increase were it

cheaper. However regardless of costs, Helga's positive perception of the Internet and its benefits outweigh the negative she perceives in the expense: "I will say going on the internet is expensive, but it also help, you see? Because on the other hand, you're gaining something, you see?"

- ***Helga's mental model on gender and ICT***

The higher levels of interest and use of ICT which Helga has observed in the men compared to the women in her personal and professional environments has contributed to her perception that males are the more skilled users:

> There is a difference [in skills between men and women] because […] I see from my husband. My husband likes the computers. He can also fix the computer. He is always on the computer. He can do anything. He is the one who is teaching me the computer. And I also see Mr Adams. He is also in that category, if I can categorise it. They are in the same boat, with my husband. I don't know everything but I'm learning from them.

According to Helga, this gender gap in skills is related to a heightened sense of fear and persistent stubborn attitudes amongst females in relation to ICT. She observes this in the behaviour of women in her area but not men:

> Ladies in Khayelitsha, they are scared of the laptops, they are scared of the computers. But they are using it […] but they are not like me. I'm very interested in the computer. I want to learn more about it. You will see that [attitude]. 'Can you do this for me?' they will ask. They don't want to learn how to. They doesn't care – even if it's easy, you can show that you must do 1, 2, 3. But they [don't want to learn].

She is noticeably very careful in distancing herself from other women and places great emphasis on the fact that unlike them she has a genuine interest in improving on her ability. She also alludes to a pattern she observes amongst the women that they tend to want digital tasks done on their behalf and don't seem interested to learn and become independent, self-sufficient users. In expanding on her views of the fear she perceives in women, she was readier to admit that this is also the case with her to a certain degree. However, she insisted that this was not an attribute shared by men and also used her husband to illustrate men's tendency to want to explore with ICT independently:

> I don't have a reason why, but [men] are really not scared. As I said to you, my husband is using the internet banking. I'm scared, I'm also having the internet banking, but I don't want to. He is the one who is using.
>
> He's that type of person, he wants to try this. He wants to see what is going to happen.

Helga's occupation as a teacher places her in a unique position in her ability to observe the behaviour and dynamics of a large number of boys and girls first-hand. Her observations indicate a

difference in the computer usage patterns of these two groups: “The boys, they can do whatever in the computer. They don’t listen to you. If they finish their exercise, they will, they want to do more things. And then they will feel on the computer […] they are adventurous.” The girls on the other hand do not exhibit the same experimental behaviour as the boys whose curiosity leads them to do their own exploring beyond what is instructed by the teachers: “But the girls, if they’re finished they will sit and talk and talk, wait for the teacher to give them the instruction again.” Her explanation for this difference in approach between boys and the girls is that girls tend to stick to the rules which they are assigned whereas boys stray from this and behave according to their own wishes: “[The girls] are interested but they like to keep the rules. Because the rules said, don’t do anything else that the teacher don’t tell you […] So, they keep the rules. But the boys, they are adventurous.”

Helga’s family values, observations of her community and experience as a church counsellor has also shaped her view of the mobile phone as a significant factor in the breakdown of marriages. She used a recent example as evidence of this viewpoint:

> [T]his man was cheating on the phone, and the wife saw that […] then the man said […] ‘no, this is my friend’. But how come your friend send you the nude pictures, all of that stuff? The priest called me and the secretary then we have to call the family. And then we have to give them the lesson about the marriage […] Because the wife wanted to divorce.

Ultimately, Helga perceives this risk or threat posed by the phone as particularly dangerous for men within her culture, whom she believes to be easily tempted and more susceptible to engaging in extramarital relationships. ICT is perceived as their means of doing so:

> [ICT] really cause troubles. I will say, the African, especially my [culture], the men are so – they get tempted very easily about the women or the ladies, you see? So, these phones and these laptops, they use it to get the ladies so that they can do this bad stuff there, you see? So, it’s really not good, if I can put it that way. It’s not really good for the African men.

4.2.2 Diane

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Saldanha Bay	64	Coloured	Grade 6	Retired	Married	3

Diane resides in Saldanha Bay, in the home which she and her husband have also opened to one of their adult daughters, son-in-law and two grandchildren. Diane left school after the sixth grade and was employed in the retail industry. She took early retirement in her late 40s to care for her infant

grandchild. She has since become accustomed to a very regular daily routine, which consists primarily of household chores and tending to her grandchildren. A quick walk to the local store is viewed as a form of mild physical exercise and a slight change of scenery.

- ***ICT access and usage***

Diane received her first mobile phone as a gift from her husband ten years before this interview. This was believed necessary by her family for safety reasons as she spends much of the day alone while the rest of the household go to work or school. Though not having requested or shown particular interest in obtaining one, Diane was happy about owning a mobile device reporting: "I was so glad for it". Since then her means of acquiring a 'new' phone has been via a hand-me-down process of her husband or children's used devices when they upgrade to newer phone models. There appears to be a perception amongst the family that older devices are sufficient for Diane while the rest of the adult household members need the latest models. One may even consider them to be somewhat condescending in their treatment, given her comment below. Diane is, however, grateful to receive the second-hand devices, perceiving them as upgrades:

> I always get the scraps. When they upgrade [they say] 'Here Ma, here's a phone for you.' […] This is my son's one. He upgraded now so, and he was so clever. He was by me for Christmas and then I saw this little box. He said 'Mommy, this is for you.' I said, 'Oh thank you, my son.' And when I opened it, I said 'Ah, you bought me a phone, I'm so glad!' and I was kissing him and hugging him. And I opened the phone, I said 'But Boeta, this phone looks very familiar.' He burst out laughing! It's his old phone – so, but then I still said thank you very much because it's a more upgraded phone than what I had. That's what they do to me […] they upgrade and they give it and then I chuck [my old] one, I put it away. So, we have such a lot of phones. Because that's no more good, take this one.

Given that she spends much of her day by herself, Diane's first and foremost perspective of the mobile phone is viewing it as a safety measure. This drives her to constantly carry it on her person even within her home: "I like my phone. I protect my phone. I keep it by me every time. Where I move around, there's my phone." It is also why she ensures she has credit at all times in case of an emergency and is reluctant to share her device with others:

> Cell phones, I think it's a very good thing because if you're in danger, like I said before, the cell phone is there. So, you need to have credit *all* the time on your phone. To protect yourself. To phone somebody and say look, here is trouble, what can I do? Phone the police. [If] I get sick. I even teach my [granddaughter] – my small little one – my number so if anything happens she must just speed dial.

> I love my phone because it's for my protection. I always tell the children 'Don't use Ma's credit because I need it.' Something happens then I've got no credit, then what? Because I haven't got a house phone so, who – what then?

Communication with family and friends is another important feature of the mobile phone for Diane. She describes daily digital interaction with her daughter who resides with her about practical domestic issues such as collecting grocery items: "[M]y daughter will text me 'Mommy what must I bring?'" This digital communication is even more germane in connecting with those located further away, most particularly her daughter living about a two-hour drive from Saldanha Bay. A video platform has recently become Diane's preferred means of maintaining this latter longer distance relationship: "… we can talk face to face. That is also one good thing about it. So, I can see her and she can see us." In general Diane's primary means of digital communication occurs via WhatsApp, and she has practically abandoned the SMS service. Besides her family, she has daily texting interaction with friends and church members – where she is very involved particularly as her husband is the priest. The content of such communication is often polite, generic chatter: "[T]his sister, she sends me every day 'Good morning, have a blessed day' and then I will say 'Thanks, same to you.'" Phone calls are still in use but generally more in situations where the content of the conversation is viewed as more serious or intimate and therefore somewhat less fitting for a text-based conversation: "[I]f I need to speak privately then I'll do a phone call but if I just want to say hi, how are you and what's happening, then I WhatsApp."

Diane relies on the television for general daily information like the news and weather and has never actively sought out content online via a search engine, reporting: "I've never been to Google. You see, I'm just glad I've got a phone to phone and to get a phone call or to go and send a WhatsApp or whatever. But otherwise, I don't actually scratch in phones." On the occasion where she requires more specific information, her daughter tends to find it on her behalf and relay it to her via phone call.

Diane is a social media user with a Facebook account. Though considering the platform to be "nice", she is quite limited in her use of it with her activity reportedly not extending beyond leaving a message for members of her close social circle on special occasions: "… only when my grandchildren's birthday is, then I will wish them on Facebook […] I just write a message. But I do use it for that occasions you know but not for other things. I don't comment." She does, however, claim to occasionally comment on posts, only "when it's a good thing" referring to when she perceives the content to be positive in nature. Uploading or sharing content is never part of her online behaviour. Social media is perceived as something reserved for her free time, unlike an application like WhatsApp which is used throughout the day: "I'm not a lot on the phone. Like in – I will sit when I get

a break and then I will go through on my Facebook to see what is on there. Okay, WhatsApp you now get then you read it. You don't need to read it again."

Diane enjoys playing games, which she does on the home desktop computer. This is notably her only interaction with a computer though she has access to multiple within the home (aside from the desktop machine, her son-in-law and grandson both own laptops). Diane elects not to use these devices for anything besides these (offline) games. She enjoys taking photographs on her mobile phone which are for her own pleasure only and rarely shared: "I leave it in the Gallery like they say. You see, then if I want to then I just pass – go to in the Gallery and then I can look at the pictures […] Ja, it's just for me." Beyond this, Diane has very limited interaction with multimedia and neither creates nor frequently views videos. While she is aware of a platform such as YouTube and that it is installed on her phone, she has never personally used it. She does, however, watch videos if sent to her via WhatsApp or if she happens to come across something of the sort on Facebook: "On the phone, yes. If there's a nice video, I'll watch it – even they put it on Facebook also, the videos […] and maybe somebody send it to me through WhatsApp and then I watch it."

- ***Influencing factors in ICT usage***

Ability and confidence

Diane possesses very limited digital knowledge and skills, which plays a definite role in her lack of progression in ICT activity. This is evident in her description of her interaction with the computer, restricted solely to a few games which she herself was notably unable to install: "Look, the computer I'm not – I don't know computers, hey? But my husband put on games for me then I sit and play games on it. That's all I know about the computer." While she enjoys taking photographs on her mobile phone, she is unable to share these in any capacity whether with her distant daughter via WhatsApp or with a broader audience by uploading it to Facebook. In the case of the latter she reported: "[D]on't ask me how do I put a photo on of them, I don't know. I just write a message." Diane also appears to misunderstand the nature of online platforms like Facebook, which is illustrated in the fact that she repeatedly creates a new account with each change of device, seemingly unaware that she is able to log on to her existing profile. For this reason, she currently has multiple Facebook accounts: "[My grandchildren] say 'Ma, you're on five Facebook's already. Every time you change.' I say because every time I change phones."

Diane's lack of know-how is accompanied by a hesitation and lack of confidence in performing certain activities. She appears to be held back from expanding her range of use and exploring with any unfamiliar technology out of a sense of fear that it will result in some negative consequence:

> I'm not into computer actually […] I feel a bit scared because I don't know what to do and if I do, then it's going to be trouble. So, I leave it now. I just know how to put it on, go into my games and that's it.
>
> I don't want to scratch there because just now I delete the stuff. I rather just play my games.

Social support system

Diane's reluctance to experiment with technology independently and venture beyond the familiar has resulted in her relying heavily on her social circle as a support system for assistance. Her use of any ICT beyond that which she is currently accustomed to would not occur unless under the watch and instruction of these individuals. She reports that before attempting to use a search engine "They must first show me how to Google also" and "If someone will teach me how then I will go more – do research and stuff […] I will if they should learn me." In this context "they" refers to her husband, children and particularly her grandchildren. It is only because of the influence of these individuals that she participates in something like social media: "I am on Facebook because the children is on Facebook, even the grandchildren." A task like sending a photograph to her daughter via WhatsApp requires the assistance of her grandson: "[i]f I want to send a photo or what then I must ask Jason, the big one." She perceives her grandchildren to be highly adept at using ICT: "[T]hey know a phone better than what we do. You know, the young generations now. My small little one is only ten but she can tell me 'No Ma, you're doing it wrong'."

Unfortunately for Diane, who appears genuinely interested in increasing her range of use of technology, she often faces impatience and/or reluctance to assist from her support system, most of whom live with her. This seems to stem from unwillingness to give of their time to this cause because of a perception that instruction is wasted on her, given her forgetfulness, supposed slow learning pace and need for repeated instruction:

> You know, just yesterday I wanted to do it. And then Jason didn't want to help me because he had too much homework. He said, 'Ma, not now, later.' So I left it.
>
> [T]hey don't want to [teach me]. 'Ma, we can't. We must show you again tomorrow. So, leave it.'
>
> I will ask [my husband] but he will tell me. 'It's no use I'm going to teach you. Tomorrow you will ask me again.' And then I leave it.

This attitude is reflected even in the words of her young granddaughter who makes statements such as: "Just leave Ma. Ma don't know." One gets the sense that the family's perception of Diane making more meaningful use of technology is somewhat of a lost cause. As a result, they typically tend to

perform digital activities on her behalf rather than putting in the effort required to teach her. For example, she would like to be able to independently use the Internet to find information, yet her daughter continues to conduct these searches on her behalf rather than helping her mother develop the skills to do so: "I've never been to Google but if [I need information] my daughter in the Strand, she's very good in that. Then I will ask her, then she will tell me 'No Mommy, don't worry. I'll Google it for you and then I'll phone you.' Like that. They must first show me how to Google also."

Affordability

The costs involved in engaging with ICT used to be problematic for retired Diane. However, this challenge was overcome when her son-in-law had uncapped Wi-Fi installed within their shared home:

> Let me tell you, the cost of like this data stuff now – oooh! I tell you, if you haven't got data, you've got nothing. So, you must have data to WhatsApp or you must have credit. But luckily my son-in-law put now the Wi-Fi in. So, I'm sorted. So, I can go download for me a game or whatever. So, I'm sorted because it's uncapped. So, I can go on. Normally I go to Amy and then I ask Amy 'Download for Aunty this, man.'

The extract also illustrates how this new resource has changed the way in which Diane uses her device, albeit only slightly. Whereas she would previously ask someone in the neighbourhood to download a game on her behalf, this is now done in her own home. As minor as this change may be, it is nevertheless significant in that playing games is one of the very few forms of ICT interaction in which Diane engages.

Literacy

Diane's embarrassment about her spelling, which she considers to be poor, influences her decisions regarding posting on social media. In fact, this fear is immediately expressed when the subject of social media is broached: "Oh my word, I don't even know what to write on there because I'm so scared for my spelling!" Lack of self-confidence in her literacy is likely related to her leaving school after completing the sixth grade. Despite being unwilling to post messages on social media, because of her fear of spelling words incorrectly, it is noteworthy that Diane is a very active user of the texting platform, WhatsApp. This is probably because she is aware that her writing on social media will be visible to an appreciably larger audience than her one-on-one conversations with close family and friends.

Lack of time

Diane, who has a very consistent daily routine, which involves cleaning, cooking and tending to her grandchildren, reports that time plays a role in limiting her ICT usage. She reports that given additional time during the day, she would spend more of it engaged in ICT-related activity: "You can spend a little more time – go through your stuff, try out this and see what they're going to learn me again and you know, things like that."

Concerns and negative perceptions

Diane is aware of many unpleasant and even potentially dangerous consequences of engaging in technology. Her experience on Facebook and observations of the behaviour and the type of activity occurring on the platform has led her to be very cautious in how much of herself she exposes online as well as conscious of the possibilities of something like being hacked and exposed to (or even involuntarily sharing) pornographic material:

> [Y]ou must be careful what you say. Because it's a media, like you said. Everybody is reading it. So, you must be very careful. And some people are not. They just want to put it on and that's it.
>
> I believe on Facebook, they hack the people, hey? Like in, tag you into videos that is not – it's not even you that have seen it or whatever. Then somebody else [sees it]… so that's why I say I'm very careful.

She has also personally been approached via her mobile device by people attempting to conduct fraudulent activity:

> [T]here's a lot of scams now. You must be very careful. People phone you, they − or they send you a message you have won so many dollars or so many millions. And then it's not true. They just want to know your banking details. So, even if they phone me and then I don't, I don't give my ID number, nothing.

Such experiences have served to heighten her awareness of the potentially negative aspects of technology, but have not in fact had much of an impact in her use of it.

- ***Diane's mental model on gender and ICT***

As a 64 year-old woman, Diane has observed significant changes in society where gender norms are concerned – much to her disapproval. She passionately lamented the extra burden placed particularly on younger women today, having to maintain full time jobs in addition to the domestic and childcare responsibilities still expected of them. Additionally, she observes a greater selfishness

and neglecting of responsibility on the part of the men of this younger generation – who she believes have grown to spend much of their time focused on ICT:

> [I]t doesn't work the same anymore. Because men, they want to go sit on the computer. They want to play games. The woman is also working. The wife is working then she must come home and she must do the cooking, she must do the washing. In the olden days, the men helped the women. You do get it still, but the majority is like 'it's my life'. Although [the women] help you work. And it's sad to see it. And especially when there's small kids. She's got to see to the kids, she's got to do this. So, it's not right. It's not like the olden days. It's more like the new things. But you must adapt, like me. I must adapt with it now. Because hulle sê vir my, 'Ma, jy's outyds. Dis lankal verby. (*Because they say to me 'Ma, you're old-fashioned. Times have changed.'*)' [Today, the women are working] during the day and you must come home and you must still fall in again. Your second job.

She observes this with her own daughter and has come to refer to the additional burden placed on women today as a "second job". Diane herself subscribes to more traditional gender norms which form a core part of her belief system and are upheld within her marriage. In the following extract she attempts to explain these beliefs in what could be considered conflicting narratives: a) her appreciation for modern day equal rights for women and b) her conviction that the man remains the head of the household and must be respected as such:

> I think we are now equal […] The husband is the head of the house, so you must respect him. But where certain things are, we are equal. Because we as ladies have got our equal rights now and I'm glad for that […] We do have different roles because my husband, like I said, he's the head of the house. You must respect whatever he do or says. But you don't need to always say yes for everything. You can also say no because you've got your right. In the olden days you couldn't say no even to the husband but now you can. You got your right.

Where ICT is concerned Diane perceives women to be the more active users as she believes that much of the activities corresponding with the offline behaviour, roles and responsibilities of females (for example household related tasks and childcare) are now conducted digitally:

> [Women] will text you. Like my daughter will text me: 'Mommy, what must I bring?' Where the men won't do that. It's like something they forget. So, I think women uses more the phone than the husband – than the men.

> [S]ome men are more by the computer if they do office work. But I think over the overall, the ladies, they know more, yes […] They're more – I think their brains is more in advance than the men because they do – ladies do more research work […] Like [my granddaughter] […] They must have like a poster from places and in the olden times. Now her mommy sits on the computer and takes it off for her [...] She's in Grade 5 now. So she's doing projects now […] Now her Mommy says it's more easy to take it off from internet. Then they just print it.

While she assumes men are still more exposed to computers in work environments, from what she personally observes in her own home, it is her daughter who uses ICT frequently for communication (via the mobile phone) and to assist the children with their homework (via the computer and Internet), not their father. It also seems she may perceive women's ICT use as centring more on information retrieval (likely due to observing her daughters) while men "want to play games", which appears to lie behind her statement that the female brain "is more in advance than men". Interestingly though, all her claims that women use ICT intensively relate to what she observes in her daughters' usage and not her own. At the same time, it is generally the men in her life whom she most frequently mentions when discussing ICT usage around her stating: "My husband is more into computer and [my grandson] is into computer, his daddy is in this laptop stuff."

4.2.3 Eleanor

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Saldanha Bay	51	Coloured	Grade 11	Homemaker with small street vendor activities	Married	2

Eleanor is a self-identified "house-executive" from Cape Town who has spent over a decade living in Saldanha Bay since her husband took up employment in the area. After completing grade 11, she was unsuccessful in attaining her high school certificate, fell pregnant and married shortly after. The youngest of her two adult sons continues to live with her and her husband whilst seeking employment. Despite referring to herself as a housewife, Eleanor is somewhat of an aspiring entrepreneur currently running what she describes to be a very small house-shop, as well as having just started weekly sales of home-cooked meals to local community members. She also intends to venture into the buying and re-selling of clothing in the near future. At the moment her limited entrepreneurial activity does not appear to occupy much of her time and her daily activities typically consist of cooking, cleaning, shopping "and all that things that a housewife does every day."

- ***ICT access and usage***

Eleanor was an early adopter of mobile technology, having acquired her first device as much as fifteen years prior to the time of interview. Her initial reason for this purchase – which she made herself – was to maintain contact with her husband who had made the move to Saldanha Bay before she and the children joined him. Since then, Eleanor's ICT usage has remained at a fairly basic level,

predominantly centred on the function of communication through phone calls and WhatsApp: “The phone for me, it’s just for, I like to phone somebody, I like to SMS somebody and I will Google some stuff if I don’t know anything. That’s why I’m using my phone – not SMS – WhatsApp.” WhatsApp is her primary means of maintaining daily interaction with her husband, family and friends both in Saldanha Bay and Cape Town. As an avid church goer, she also participates with other female members in a ‘ladies’ WhatsApp chat group. This communication with her social circle is central to Eleanor’s dependence on her phone and in describing her relationship with it she states: “It’s my baby.” Expanding on this perspective, she explains: “If I don’t have my phone on me, then I’m going to get crazy […] because then I’m just thinking, ‘Yes lord, who did phone me? Did my mommy phone me? Did somebody phone me?’ So I must have my phone.”

Eleanor also incorporated the communication function of her device into her recent food sales initiative, during which she relies on WhatsApp to notify potential buyers (for the moment mainly her social circle and known members of her immediate community), sending a single message to her list of contacts to inform them and receive their orders via a WhatsApp response: “[T]his weekend I’m selling burgers and chips, then I just make one WhatsApp and send it to everybody.” She has an email account which she makes no use of. It appears as though it was created at the request of her husband who has previously required her to send him information.

Eleanor’s interest in cooking also influences her ICT usage as it is in fact the only form of content she was referring to in her previous statement: “I will Google some stuff if I don’t know anything.” She explained: “If I want to bake something today and I forgot about the recipe then I will Google quickly and see.” Such information is only gained in text format and not for example through any video instructional content. Any information beyond recipes is not sought online but passively received through watching television. Besides her interest in cooking, the only use Eleanor makes of ICT solely for her own enjoyment is playing offline games. This is the only use she makes of a computer; all other activity is done on her mobile phone.

Eleanor has engaged in social media via Facebook for two years and is a relatively frequent user, typically logging on and browsing her newsfeed during her relaxation time in the evenings. Her social media presence and behaviour is very passive in nature: the platform is treated as a means to absorb what others are posting and not to share an opinion or content of her own. The crux of her activity lies in her statement: “I will check what’s going on and who said something and what’s going on. But I’m more in the, like what other people say, just. I’m just checking, that’s all.” In this sense she rarely uploads material or posts statuses, though she does claim to update her profile picture often: “I’ll put myself on. I will always put a new pic of myself and that’s all.” This is somewhat in conflict with her

claim that she does not enjoy taking 'selfies' or having her photograph taken as she perceives herself as "not a photogenic person". Eleanor attributes her lack of activity on Facebook to being a very private person, who does not enjoy or feel comfortable with expressing (or exposing) herself to the public:

> I'm not into a lot of − I'm not a very − what can I, how can I say it now? Person people. Just me and my family, that's all.
>
> I'm very personal. I don't put anything on, or I'm not going to put − add that one. Invite no, I don't know you, no.

The latter statement also contradicts her claim that she regularly uploads profile pictures. In line with her aversion to online expression, she is also very selective in her commentary on the posts of others and typically only interacts with her immediate family and close circle: "I will say, I like. And I will say, I love it, pretty. But not every time. When it's my family or like, for instance like [the girl living nearby] or her mommy or people that I know, then I will say a comment on that one. That's all." Eleanor's immediate response to the mention of social media was to declare: "I'm not addicted to Facebook, no. No, I will just in the evening then I will check what's going on." Her need to clarify this suggests that she would rather not be perceived as an avid user or have herself closely associated with such activity.

- ***Influencing factors in ICT usage***

Ability and confidence

Eleanor's ICT ability is restricted to the very narrow range of activity she currently engages in. She appears to have limited knowledge and some misunderstanding about the nature of certain technologies, for example she reports having no password on her phone but later refers to the "pattern" she uses to unlock it. She also seems to hold a flawed notion of the function of Internet banking, as her rationale for wanting to engage in this technology (i.e. to consistently have cash on hand in her home) is mismatched to what the service essentially offers (paperless, electronic financial transactions):

> [N]ow we're using just the card and yesterday it was a problem in the house. Because there's no money, cash. It's all plastic. Frustrate me. I said no! So, I told my husband last night, no, I'm going to go to the bank and go draw me money. I can't go without money in the house.

Eleanor did not admit to or demonstrate a fear or lack of confidence related to her ability. Her husband and son (who at that point had ample time) made themselves available if at any point she requested their assistance: "[I]f I don't know something, then I will just say 'Oooh, come please.

Come check here.'" Such assistance was, for example, required when emailing her husband – a task which fell out of her usual range of digital activity: "[H]e will come show me first. 'Okay, make so, go there and go there.' And if I don't know I scream 'Ah, come help!'" Given that she believes herself to be well enough equipped to perform the activity which she currently engages in, a lack of skills does not appear to bother or concern her in any way.

Interest and attitude

Eleanor's lack of progression to a broader range and more meaningful use of ICT appears to stem largely from a lack of interest or drive to do so. She is aware of the digital opportunities that exist beyond her current range of use and is even aware of those which may be of interest to her, for example through a suggestion by a friend that she could access music of her liking: "[S]omebody told me when − two weeks ago about it. I must − if I want to − I'm into Gospel and I must, what did she say? Now I can't remember what she told me. But if I want to take that song, then I must use [YouTube]." This was not the first time she was directed towards such technology − which she is also well aware is already installed on her phone − as her son frequently attempts to nudge her to increase her use and makes concerted effort to instruct her on how to do so: "You know, my son, he will always come and say 'Mommy, you must do that' and 'Mommy, go in there' and do that, and do that [...] He will come sit by me and tell me 'You must do that, mommy. Go in there.'" Eleanor's response to these efforts is generally "Oh no, it's fine. Don't worry. It's okay." On the rare occasion that she allows him to demonstrate, she only engages with the technology for that particular day, making no use of it afterwards. Her reasoning for this is that she is just not interested in continuing and that it holds little value or meaning for her. She explicitly stated: "It's not important to me." She also tends to mentally disengage and distance herself at times when the subject of ICT is broached, illustrated in a scenario with her husband: "[M]y husband will sit at night with his computer. And he will complain if that thing is not working. 'No, this thing doesn't work right. Why is this thing not?' Then I switch me off." Ironically, the only interest Eleanor shows in broadening her use is the same technology which is unsuited to her goal, namely the previously referred to Internet banking feature. She states: "I really want to go do it now. I want to. But I must still." Ultimately Eleanor's lack of interest and drive to further engage with ICT seems aligned to a deeply embedded belief and decidedly fixed mindset that it is not fitting to her life. This is perhaps most directly summed up in her statement: "I'm not used to computers but I'm just using my phone. That's all. I will do some stuff but that is not my life."

Affordability

Eleanor's spending on credit is considerable, given the modest income her small part-time business ventures generate. She passionately lamented the challenge of high ICT prices: "Oh Lord, it's very expensive! MTN, it's really a problem […] if it's cheaper, then I will seker maar (*probably*) more be on the Google or whatever but now, you can't. You must limit yourself." Her only other exposure to Internet access is via the Wi-Fi at church, which she does not appear to make use of given her limited time spent there. She admits to occasionally diverting money intended for other budgetary purposes towards credit stating: "because I *must* have this phone on" – illustrating both that money is limited and that she has a high enough dependence on connectivity via her mobile phone to forego other possessions. However, while she always ensures a basic level of connectivity, her previous statement that she "must limit" herself is critical in that costs appear to be restricting her frequency and range of use (for example, information-seeking), which she claimed she might broaden were it cheaper to do so.

Concerns and negative perceptions

Eleanor's perception of safety and security online is slightly puzzling. She believes the Internet in general, along with its higher risk features including Internet banking to be safe, while showing much more hesitation about and distrust of using social media stating: "I won't put anything of myself on Facebook. I see people like to expose [themselves] on Facebook. I'm not that type of person." This may be due to her limited exposure, experience and understanding of the Internet in itself – as was earlier reported, her usage beyond social media and WhatsApp is very limited thus there is little opportunity for any negative or unpleasant experiences to occur out of these contexts. She has, for example, never been exposed to any explicit content online which she may have found unsettling. On the other hand, her greater familiarity with Facebook has subjected her to certain negative experiences in terms of online harassment or abuse, where her rejection of an unfamiliar man's unwanted advances was not well received: "Somebody called me a bitch […] he want me to add him [on Facebook] … and I don't want to add him and he sent a message there 'You bitch.' … There's funny stuff, that's why I said my phone is very – I'm very personal." She has also received many financial scam type messages by unknown individuals to her mobile phone to which her reaction is to "just ignore, ignore, delete". Though these experiences ultimately influence her perception of digital participation, it does not seem to have had a substantial impact on her usage and has not led to her completely abandoning social media. If anything, it has served to reinforce her already cautious online behaviour (particularly with regard to whom she interacts) and hesitance in expressing herself online.

Lack of time

A lack of time is not a considerable factor in restricting Eleanor's ICT usage however she did express that given more "[T]hen I will relax with my phone" but "only for a bit". The following example of a typical ICT-related interaction during her day illustrates how her phone occupies a significant amount of time and attention sometimes interfering with her daily responsibilities. She feels the need to check it very frequently and is sometimes also under pressure to do so:

> [If] I'm really busy, then the phone can lay there. I'm busy with my stuff now. I will just go in 10, 20 minutes again and go check there, maybe somebody sent me a WhatsApp or because they always say I'm delayed. 'You must look at your phone!' My friend in Cape Town: 'Why didn't you WhatsApp me back?' Then I say, 'Ai Lord Jesus, I haven't got time. I've got stuff to do.'

- ***Eleanor's mental model on gender and ICT***

Eleanor and her husband do not hide their activity on their phones from each other and "have the same pattern" as passwords. She does not believe this to be the norm in relationships in her area, which she believes contributes to tension and fighting, as she observes in her neighbours noting: "They have lots of issues." Eleanor has come to associate such negativity with the general culture of the community and has developed a distinct distaste for the town of Saldanha stating: "This place, oh Lord! This is another place. I want to move back to Cape Town." Her observations of the prevalence of gender-based violence and alcohol abuse in the area partially underlie this preference for Cape Town. Apart from this, Eleanor has also increasingly come to recognise a cultural movement of role reversal in the community where females are not only expected to join the men in contributing to household income, but are now often relied on by the men to be the sole earners and still meet their domestic and childcare duties. Many of the men are said to be occupying this time consuming alcohol or as Eleanor refers to it: "dop-ing [translation: drinking] the whole day.":

> [M]en is very abusive here in this area […] Here, in Saldanha, the women must go work and the husbands stay at home. This is a problem here in Saldanha […] Maybe, they're seker maar (*probably*) fine [with that]. They can be fine with it but this is not how I grew up. My husband must work for me.

As is evident from the extract, Eleanor subscribes to traditional gender norms whereby she believes her husband should be the breadwinner within the home and is deeply opposed to this perceived shift in norms. Her entrepreneurial ventures stem more from a need to gain some extra income rather than wanting to change her status and role as a housewife.

Though she clearly perceives women to have significantly less available time given their substantially higher level of tasks and responsibilities, it is not clear whether Eleanor in any way relates this to ICT usage. She does not appear to make any general distinction between men and women in this regard, not perceiving any differences in their level of digital skills or engagement, nor has she picked up on any trends in society where a distinction is made between the two. She does, however, observe that unlike her, the men in her household – her husband and son – are very "into this", referring to technology. Her perception of gender within the context of ICT usage is that no differences exist at a societal level but that they do within her own particular household context.

4.2.4 Iris

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Khayelitsha	30	Black	Post-school qualification	Self-employed	Boyfriend	1

Originally from the Eastern Cape, Iris and her mother joined her father in Cape Town (where he had been working) as there were no high schools for her to attend in their vicinity and boarding school fees were out of her parents' financial means. After finishing her schooling, Iris completed a one-year diploma in Cosmetology given her passion for the field of beauty and wellness. She would have preferred a more extensive course, but lacked the necessary funding to do so. After working as a beauty therapist in a number of stores, salons and prominent hotels, Iris resigned in order to pursue her ambition of being self-employed and run her own mobile spa. She is currently working to build up her clientele and she largely lives from hand-to-mouth. For this reason, she recently also initiated a construction company to supplement her income and savings. She hopes to open a beauty spa and produce her own range of organic skincare products. Iris shares a home in Khayelitsha with her seven year-old daughter and is currently in a relationship.

- ***ICT access and usage***

Up until very recently, Iris's sole use of her mobile phone was as a communication tool, with her interactions occurring via phone calls, SMSes and more recently, WhatsApp. The latter is particularly preferred for the convenience of reaching a wider audience:

> First when I had cell phone, my cell phone was just for receiving calls, SMS-ing and then came WhatsApp. Then WhatsApp was better than SMS because I would send to multiple people at the same time or have a group chat. So, there's more information coming. That's all I used my phone for.

These platforms are used to communicate with family, friends, clients and others – digital channels have for example become pertinent in maintaining communication with her young daughter's teachers and extracurricular instructors. WhatsApp is used on a one-on-one basis between herself and the teacher regarding issues pertaining specifically to her daughter, whereas more general issues concerning the class as a whole are communicated via a designated WhatsApp group chat.

Aside from these communication platforms, Iris's earlier use of ICT generally did not extend beyond basic activity such as typing a CV at her local e-centre, this despite owning a laptop herself. The past year has seen a marked change in this behaviour, observable in Iris's broadened range of use as well as perceptions of technology, which she now considers indispensable in her daily functioning, specifically in the running of her businesses. Her statements in this regard include: "it really has helped me" and "your phone is actually a great tool for your business, especially as a small business." Iris's business orientation was thus the motivation for this shift in ICT-related behaviour:

> I started using Internet after I had interest in my own business because I will check the pictures, the names and the setup, all that type of things that I've started doing in the internet. Otherwise before no, I'll just send my CV, forward my CV or something like that. I wasn't using technology so much.

At the moment Iris employs ICT across a wide range of her business practices and operations. This includes her reliance on it for administrative purposes and to increase efficiency, for example storing data digitally rather than through a paper-based system, locating clients (given the essential mobility component of her service) and organising her schedule (though she continues to use a diary as well):

> [Y]ou don't have to have loads of documents at your home or office as a small business because you do everything yourself. Then you can just save some stuff on Google cloud so that you don't lose anything. Even if you lose the phone but you don't lose the information that you have.
>
> And also, what I found is exciting is just that about Google Maps so I can − as a mobile spa I can Google where my clients are. Then I can make a time, calling my client where − give me directions or the client can just send me a location on WhatsApp then it's easy access for me.
>
> And you can also download Evernote where you can make a note so you don't have to carry a diary around but I still carry mine.

ICT is also critical as a means of sending and receiving information in both of her businesses, for example in emailing quotations, sending electronic business cards and responding to requests for information (RFIs) sent to her small construction company. The latter is particularly a matter of urgency and her main reason for ensuring her phone remains on hand at all times:

> I make sure before I leave, my phone is fully charged so that I can - The reason that I make sure that I have my phone is so that every RFI that comes in then I can accept it because the next day it will be expired. It's a request for information for an event like tenders. So, if they want suppliers or something then I have to accept it so that I can get a request for quotation. If I don't accept RFI, then I won't get a request for quotation. So, that's why I always make sure that I have my phone.

Her interest in ICT as an informational resource stems primarily from her passion as a beauty therapist and her ambition to develop her own skincare range. Iris has grown increasingly fond of conducting research online, educating herself on treatments to incorporate into her current practice – which she particularly enjoys in the style of YouTube tutorial videos – as well as researching potential organic African ingredients for her own future product. Previously largely unfamiliar with Internet browsing, Iris now emphatically declares "I love Google", often spending her free time consuming information: "[W]hen I sit at home and I don't have anything to do then I'll go and Google which products or what can I do or which are effective ingredients, natural effective ingredients, that kind of stuff." This activity is not restricted to free time as she also undertakes searches throughout her day when she "gets ideas". Beyond work-related subject matter, her use of the Internet as a source of information is somewhat limited with little searches related to news or other topics of interest. Material of this nature is mainly absorbed via older mediums like the television: "Some of the news I get from Yahoo because I always check my − sign in my email. And some of it I will just browse on Yahoo news. But I don't really go online for news. I will just listen to the TV. If it happens that I'm at home at 7pm then I will watch the news." Iris demonstrates some effort to discern between her sources of information and its trustworthiness. For example, she describes using her judgement to assess the seriousness of the particular information required and whether or not to rely on online sources: "It depends, if it's small then I'll Google. If something it's − like my daughter and she has a rash or something then I will go straight to the doctor. If it's a minor thing then I will just Google it. Ja or if I am curious or want to know something then I will Google it."

Iris is a social media user with both a personal Facebook account and one created specifically for her mobile spa with the aim of marketing her services. She rarely updates either of these personal or professional pages. One rationale she provides for her lack of activity is reluctance by clients to have their pictures publicly exposed: "I sometimes update − not that I do so much. Because some of the

clients, they don't want their pictures being taken and put on Facebook. So, I just haven't done it in a while." She also points to WhatsApp as a means of marketing amongst existing clients: "[Y]ou can have a group of WhatsApp, you can do marketing on your phone, on your WhatsApp taking pictures of your client, you've just done her nails then you can do that. And you can forward all your clients the information or the promotion that you have." The degree to which such action is actually undertaken is not clear, however, and she still seems to rely on word-of-mouth to advertise her services.

Her lack of activity, specifically on her mobile spa's Facebook page, causes Iris some distress as she understands the pertinent role of social media in business: "[S]ometimes I get hard on myself for not doing it. Because I believe that it will increase my revenues and it will get out there. But I don't do it." While she may not make much use of it in directly marketing her company, her only apparent enjoyment of Facebook is related to her business in that it concerns being motivated to increase her capacity: "There are two groups that they kind of motivate me about business. So, every time I go, I go and check on their pages." This reflects the general nature of her social media usage, which is largely limited to receiving (and not expressing) content: "I don't remember the last time I updated […] I go on Facebook but I don't update […] I just check up." She prefers saving content which has personal meaning to her like photographs of her daughter on her phone and has not uploaded such material in years. She does, however, intend to start contributing material online in the form of a blog she plans to create as an educational resource on beauty and wellness. The motivation for this stems particularly from her observations of women in the Khayelitsha townships, who she believes lack understanding of the wellness aspect and are only interested in the visible features of beauty. This is the motivation for Iris's desire to educate women via a blog of her own:

> [I]n Khayelitsha […] at a township they don't understand. I need to educate them what is, what does beauty really mean. For them − my experience or my view is that they – It must be a visible treatment […] they don't understand the benefit of massage and facials and the waxing. They would rather do artificial nails and lashes and weaves and when I started my company, I didn't focus on that. I had to twist a bit to accommodate some of my clients because they will say massage is expensive and nobody notice or sees them if they had a beauty treatment if it's a massage. So, it's going to take me a while. I must educate them and make them understand what is important [...].

As is apparent, Iris's work constitutes the far majority of her ICT activity and little is engaged in outside of this area, as she stated that she does not really use ICT for entertainment purposes (aside from the odd occasion watching a comedic video on YouTube). She described herself as "a boring person" and her evening routine as: "I will come home in the evening and help my daughter do her homework and then I watch TV and sleep." As much as she is engaged on her device, this is out of

necessity for work purposes and never for "just fiddling on my phone for no reason". This is also evident in her statement: "On weekends, I try and stay away from my phone. Unless my phone rings then I can check it. I don't just take my phone and go on Facebook and update things or say stuff." Given this very intentional, goal-orientated use of her mobile phone and perception of it as a tool used for specific purposes, it is probably not surprising that Iris is "not fussy about phones". She does not care about having a particular brand or the latest technology – as long as the device has the essential features she currently makes use of (which are the typical features of most smartphones).

- ***Influencing factors***

Awareness

Lack of awareness appears to have been a considerable factor in Iris's distant relationship with ICT prior to her mobile skills development training. She seems not only to have been unable to perform many digital tasks, but was also unaware of the possibilities available to her, particularly in her professional life. She describes her feelings in this regard:

> Technology has so much power. I didn't know, I really didn't know.
>
> [I] attended the workshop at the barn for like ten weeks [...] That's where they opened my mind about technology. I'm not a technology person but they opened my mind what you can do with your phone.
>
> I will see the scanner or the barcode in some of the big shops or in the mall. But I will wonder what is that? Why is it there? Then when I did the [training, I realised] oh, okay! Ja, it was eye-opening, the training. It really helped me […] now I'm like wow, this is how it works!

Iris's perception of technology before undergoing training was negatively skewed, describing herself as the "one person that doesn't like technology much". It appears that exposure to the wealth of potential benefits available to her as a business owner via these resources was the key to her changing ICT behavioural patterns. She has not only already capitalised on her newfound awareness by using multiple new applications but is cognisant of possibilities that she intends to explore in future such as Internet banking and her own mobile application:

> [M]y company it's hand to mouth kind of thing, so I haven't started using [Internet banking]. But I'm aware of the apps that are there that I can use to save time. When I have staff then I know I can use Internet banking or my clients when they pay me, they can use the Internet banking as well.

> I wanted my own app. For my mobile [spa] but the reason that has held me back is that I don't have the resources, plus I don't want a traffic and not being able to handle that traffic and sabotage my name. So, kind of − maybe not now. Maybe when I have premises and still keep the mobile [spa]. Then I can control that.

These examples illustrate more than an awareness of technological tools. There is also an understanding of the conditions under which they could and should be implemented into her specific context as well as the potential negative outcomes if not correctly done. This awareness came as a result of the training programme.

Ability and confidence

As previously stated, Iris has long been a frequent visitor of the local e-centre when in need of a computer, despite having her own laptop and even printer at home. This inefficient use of her devices was due to a lack of ability to do so: "I don't have − my laptop doesn't have bundles. Someone said you can use your phone as a modem. I'm like, how do I connect that? At home I have a printer, I have a laptop, but I still go to Internet café and waste money." This is particularly regrettable given the substantial period of time she has had these technologies at her disposal, yet been unable to effectively use them. It is also noteworthy that those borrowing Iris's laptop are in fact gaining more from her resources than she is: "I have a laptop for so many years and my sister use it, I don't even use it. So, when I look for stuff, I have to ask her. She'll ask me 'But this is your laptop and you still don't know stuff.'"

Up until recently, this lack of computer skills and lack of confidence, applied to her mobile phone as well. The increased use of her device from initially functioning merely as a basic communication tool to a resource used in a wide range of daily activities came as a result of a mobile skills development training programme which Iris recently completed. About the learning process itself, she notes: "It wasn't easy." However, its impact was highly significant as she describes: "I've learned a lot of things." This includes a range of applications and functions of the mobile phone she currently uses for work. She states: "[i]t was eye-opening, the training. It really helped me… now I'm like wow, this is how it works! Okay! I was so excited, like a baby. Oh my god, now I can do so much with my phone."

Though her level of ability has grown tremendously, Iris still lacks pertinent skills even after the training. Given that the programme focused on mobile devices, there now appears to be a disparity between her competency with her phone as opposed to a computer, where she still seems to lack knowledge and understanding. For example, she is still unable to perform the task she previously spoke of, namely connecting to the Internet on her laptop via the data on her mobile phone. This is

one illustration of a competency she lacks that she believes would be highly beneficial for her business and that her inability is holding her back:

> It will be great if I can use more than I do now […] I still cannot connect my − using my smart phone as a modem and connect to my laptop. That I cannot do. I still have to ask someone. So, if I can do that, that means I can do my business anywhere I go. And I can get more information. I think it will be nice if I can be able to use more than I do now.

Social support system

Iris's ICT engagement has been influenced in a number of ways by those around her. For example, though she does not enjoy taking photographs using her mobile device, she indulges her young daughter who does: "[She] forces me to take pictures. She will take the phone and say take pictures then I take pictures. Otherwise if she doesn't say then I don't take pictures." Her enrolment in the training programme which so significantly affected her ICT behaviour came about as a result of a friend informing her of the digital literacy events occurring at a learning institution in Khayelitsha:

> The workshop that I attended, a friend of mine, her friend works for the barn. So, all the events that are coming to the barn, she will get them or she will tell [that] this is happening at the barn. And she told me that there will be this workshop. Then I went, so now that they have my information then they will call me and say there is this happening at the barn.

When assistance with digital activity is required, Iris might request this from her sister though the source of help whom she holds in the highest esteem is an IT specialist friend of hers. He does not, however, always provide such assistance, encouraging her to find the solutions on her own instead: "[S]ometimes he doesn't help me. He just says you must find out yourself." Iris does not generally look to her boyfriend for help where ICT is concerned, considering him not very competent in this regard. She has, however, requested his assistance with the blog she intends to initiate:

> My boyfriend, he likes writing so I asked him yesterday, last night if − where I want to do blogging about beauty and wellness and healthy eating. Then he will write, he will do the research and write and I will just post. So, he said it's okay and then I must start working on it and see what's − which ones we should do first. And then we can start doing that.

Iris describes not wanting to perform tasks independently. This was also the case during training when she constantly wanted the instructor's supervision while attempting a new activity: "I was nervous and I always wanted [the trainer] to assist me on how to do it." This need for support or accompaniment when engaging in unfamiliar digital activity may partially explain why Iris has not applied her new mobile device skillset to her use of the computer and independently explored the possibilities of the machine.

Interest

Iris described herself as extremely uninterested in ICT until the many opportunities it affords were explained to her during the training process. Of her former attitude she stated: "I don't like technology. I'm not interested in technology." This had changed to: "And now I'm like wow, this is how it works! Okay! I was so excited, like a baby. Oh my god, now I can do so much with my phone." Her excitement is reflected in a genuine interest in further improving her knowledge and broadening her current range of activity: "It will be great if I can use more than I do now. I think it will be nice if I can be able to use more than I do now." This new interest and excitement has not only led her to consider using existing platforms, but to move beyond these – with the aim of creating her own business mobile application in future and imagining and envisioning other potential innovative applications:

> [W]hen a person or a client doesn't know some of – they don't know the type of skin they have. So, if they can have that app that you can just write down or say that you have dehydrated skin and sensitive cheeks then they can recommend a product for you. That kind of app, that will be nice so that people don't use the wrong products.

Iris's decision to enrol in an ICT skills development programme may appear strange, given the complete lack of interest she revealed previously in anything other than basic communication functions. What ultimately persuaded her to attend the workshops was not the promise of mobile skills development, but the fact that this was specifically targeted at local entrepreneurs, offering to help them grow their small businesses using a tool many already owned (the smartphone): "Someone said it's a good training every entrepreneur should attend in the township. It's an eye-opener. That's why I went."

Despite her significantly heightened awareness, new skills and greater interest, there are still some areas where Iris remains uninterested, social media being the most significant of these. This is despite her belief that an active Facebook page would contribute to the growth of her mobile spa. Ultimately Iris's enhanced interest and use of ICT is directly related to her business. As much as she has integrated it into her daily activity and as positive as her perception of it may be now, she maintains that she would not be using it much were it not for her job.

Affordability

Iris is quite wary and careful about her ICT expenses, preferring not to purchase devices at all. She is fortunate enough to have a mother who did so on her behalf: "I don't like buying phones […] The phone that I have, my mum bought it for me. I never bought myself a phone. I just − I don't think it's

something that I can invest so much in it." She did, however, purchase a laptop as she required one during her studies. Wary of the likely cost, she made sure to get one on promotion. Though Iris was managing to meet her ICT expenses, she believed that lower data costs would not only increase her frequency of use but expand the nature and range of digital activity she engaged in. A data-intensive activity like streaming video content – which was particularly useful for her given the wealth of learning material related to her line of work – was being reserved for when she has access to Wi-Fi. Public e-centres are not, however, considered very practical settings for such activity and Iris would love to be engaging in more of this within her private space:

> [If data was cheaper I would do things] like checking the beauty apps that are out there. Or what apps I can do. I will check things that can improve my company and educate myself […] And checking the tutorials as well […] Because now it's not practical to go to internet café and listen to YouTube. But if you can have the Wi-Fi at home then you can listen and save those every time you need to check something. Then you can go back to that saved YouTube video.

She thus sees affordability as a significant inhibiting factor for the township community and that free Internet access in popular locations within the area would serve well to increase digital adoption:

> [Wi-Fi] will be nice in the township where we have like our own business parks. You go there for tea then you have free Wi-Fi while you have a meeting so that we don't travel […]. I think it will be nice where we can have free Wi-Fi. Then everybody maybe can be interested in technology because it's a free access to everybody.

Iris has some ambitious future business goals including a mobile phone application for her spa. Financial constraints prevent her from currently pursuing this: "I wanted my own app. For my mobile [spa] but the reason that has held me back is that I don't have the resources." Besides the necessary funding for development, her financial standing also leaves her unable to employ someone to maintain the traffic as she does not want to do this herself: "How I wish I can have someone that can update all the stuff for me. But I'm a small business so I cannot have someone doing that for me and paying that person. I need to do it myself but I still don't."

The financial influence in her ICT usage is also evident in that she sometimes substitutes money intended for other purposes on credit. However, these are typically small, insignificant items: "Maybe if I have to travel to town, instead of me having coffee then I'll bring water from home. Then I buy myself credit." Iris does, however, note that her more effective use of technology recently has saved her money, which she was previously wasting on e-centre expenses (both in paying to use the facilities as well as costs in travelling there), when she in fact has all the necessary tools within her home.

Privacy concerns

Though Iris does not consider the Internet to be safe, this has not substantially affected her decisions in engaging with ICT. The most significant outcome of her distrust may be in her use of social media and the restraint with which she chooses to upload content as a result of maintaining her privacy: "I think the last time I posted pictures on Facebook of my daughter, it was two years ago. I don't like posting pictures of my daughter on Facebook. I'm a private person." Her view of uploading photographs to WhatsApp as a profile picture has also been tainted after discovering that a man with whom she was acquainted had been "stealing" her images on the application: "I'm like, this is my picture [...] they open it and they save it to their phones [...] I didn't give the permission to take my pictures. That's why I don't put my pictures on."

While Iris had these privacy concerns and distrust of the Internet before her digital training, her knowledge both of the risks as well as safety measures to be taken were significantly changed during the instruction noting that "the education − it made me more like more conscious". She is much more cautious in her online behaviour and specifically in what and how she chooses to engage when using the public resources at the e-centre:

> You must be extra careful when you – especially when you're using it in a public area like internet café. Then you must make sure that you delete your personal document or your company documents […] don't leave it saved there because people can use your information that you leave there. And if you see that your time is about to end then you must log off from your email so that the [next] person doesn't log into your email […] I won't do [Internet banking] in a public space like internet café, no. I will prefer to do it on my laptop or my phone […] That's something that I've learned through the training. I didn't mind when my time's about to end, five minutes left I would continue to do whatever I was doing and I would leave it open. I really didn't care. So, it was an eye-opener when the facilitator told us that it's important that you log off and you delete some stuff […]. [ICT] helps a lot of things but it's not that safe.

As far as feeling physically safe, Iris feels comfortable and has not experienced any negativity in using the public e-centre facility.

Environmental constraints

Signal and network issues in her area pose a challenge for Iris at times where she may miss phone calls, which is problematic given the pertinent role of her phone in her business:

> Signal is a problem […] Because in my area, especially in my home, it's like I'm in a cave. Sometimes people will call me and my phone go straight to voicemail. Ja, it's a problem. I don't know if it's a network or signal because most of MTN has – it's problematic with the network, signal [...] But my sister is using Telkom. She never have a problem with the signal […]. I'm thinking of porting to Telkom.

Resistance from partner

From the personal experience of her own relationship as well as her observations of those around her, Iris has concluded that distrust in general within romantic relationships has become inextricably linked to the technological space. She believes that these devices have essentially evolved into tools to remain informed of the activities of the significant other – specifically those of a surreptitious nature – and are thereby a source of conflict in relationships: "Technology, when it comes to relationships, it's not good." In her own relationship, she is aware that her boyfriend checks her device to monitor her phone activity:

> He snoops on my phone. He doesn't like – If he uses my phone while I'm there then he will check whatever [he] wants to do on my phone or see the pictures I'm showing him or email or whatever I'm showing him. But when I step out then he will go to my phone. I don't know what he does or what he's looking on my phone.

This has led to unpleasant incidents in the past where he was unhappy with what he came across on her device:

> He went on my phone and he saw my WhatsApp conversation with my ex-boyfriend. So that was a problem […] But I don't know if he has trust issues or he wants to know everything that happens in my life. So I don't know what he was – but I never confronted him.

According to her, she does not engage in the same type of surveillance of his device as she considers a mobile phone to be very personal property and should be respected as such: "I don't use his phone. I know his password, but I don't use his phone. I think personally, a phone is private. And there's information that might be there that he doesn't want me to know. That's why I'll respect someone's phone." Though Iris appears to find his invasion of her privacy as somewhat of an annoyance, she elects not to confront her boyfriend or address this issue as she believes she has nothing to hide. His inspections of her device have also not affected her use of it or her belief that she is free to do with it as she pleases. Iris's limited engagement with ICT over weekends may be a way of avoiding conflict as this is precisely when she is most in the company of her boyfriend.

- ***Iris's mental model on gender and ICT***

Iris perceives certain gender differences in ICT usage, believing women to be less competent and men the more skilled users. She also appears to somewhat associate her own formerly distant relationship with ICT as being "a women thing". Asked whether she perceived ICT as fitting into the male domain, she responded:

> Yes, because men are good at it. Even if they know nothing about IT, they don't know anything about IT but they will still do it better than women [...]. They will do better than women even if they don't know anything about computers but they still do it better than women.

This suggests a belief that men are innately better at using ICT than women, which seems to contradict her portrayal of those closest to her. She appeared unaware of this. Whereas her sister is considered digitally competent and Iris calls on her for assistance when she requires it, she has much less faith in the ability of her boyfriend: "My boyfriend is not as good with technology […]. He has an iPhone but he doesn't use it effectively. So no, I don't trust him with technology." Despite this lack of confidence in her boyfriend's skills and even with a newfound confidence in her own recently acquired skillset, Iris is hesitant to consider herself the more competent of the two. She explained "Because he's a man. I think technology in my view it's more − men are better at it. I'm not saying that it's for men, but men are better at it."

While she may have an underlying belief that men are naturally better with technology, there are certain explanations Iris offered which suggest it may be less innate than she initially stated. The first of these explanations relates to societal gender roles, specifically Iris's observations of women as constantly multitasking and juggling a number of responsibilities and tasks at any given time:

> [S]ometimes women will be here doing interview and thinking about the next thing she needs to do after the interview or the − whatever she couldn't do right yesterday. Or there was something bothering her yesterday, so she will be here and thinking of something else. So, not her mind is focused on what she does now.

She finds that a disproportionate share of the burden of labour is carried by women, especially affecting those living with a husband and children while maintaining a job and perhaps most so for those in senior positions with time-consuming careers:

> For example, if you are married and you have kids, as a wife you wake up in the morning to get the children ready, to have the cereal done, to bath them and to get the lunch ready and go to school. For your husband, he gets up at 07:00 if he starts work at 08:00. Then he takes a shower, he eats and he goes to work. And you must still get your − you're confused, you're not sure which outfit to take and you must − I think it's even more challenging for women that have higher positions at work. So, they have to deal with the stress at work as well. So it's too much responsibility for women […] When she comes back home she must do − she must assist the kids with their homework and she must cook. She must make sure everything is done and perfectly done for the next day and she must iron for the husband. All that.

Though Iris leads a busy lifestyle as a single mother running multiple new small businesses, she believes not living with her boyfriend relieves much of the burden she has witnessed many other women having. She also observed these distinct gender roles with her parents while growing up and witnessed her father only performing domestic responsibilities when living on his own in the Western Cape where he worked, but when home her mother performed all the tasks for him. Iris believes that this disparity in responsibilities leading to more leisure time and a generally more relaxed frame of mind for men contributes to more frequent ICT use by males as well as more entertainment-oriented engagement than females. She seems to perceive ICT as being somewhat insignificant in the greater scheme of women's many responsibilities and considerations, thereby placing digital activity (particularly for entertainment purposes) rather low on women's priority lists:

> I think that men's brain or men's mind, they're not so busy on multitasking and doing other things. That's why they have time to master small things like computers and all that. Because as women or ladies we have so much to think about. There's always so much going on in our head and technology is not one of those things. And for men, they have games so if you have a laptop and game then you must know.

In addition, Iris also perceives different male and female character traits to factor into ICT usage. She believes that men generally feel a greater need to come across as self-sufficient and knowledgeable and are thus much more opposed to asking for assistance than women, for whom acknowledging that they're unable or lack knowledge is not perceived as an embarrassment or something to hide. ICT engagement is no exception in this regard: "I think [men] don't like − they don't want to ask friends to assist them with connecting stuff. So they want to be seen as they understand technology better or they're good at it. I don't know. That's just my view."

On the other hand, Iris believes that there's an increasing cultural shift in society, including within her own culture, where women are breaking down gender norms including in the field of ICT and moving into areas not typically considered as being for them:

> [W]omen have shift a bit. Now, there is women IT specialists so they also now, they are breaking that norm that kind of [dictates] there are some stuff that's there for women […] I think we are breaking that norm. But they still − there are still things that women they get judged when they do it because it's not normal for women to do such things. Like getting drunk in the street and smoking. That's a taboo in our culture, women smoking. But there are women smoking in public now. So, ja. Things are changing.

While Iris considers that women may be breaking down norms by becoming more integrated into what was once socially perceived as a male field, she also believes that ICT is being used to reinforce harmful gender norms, and that the way women are judged in society is now being reflected online, specifically via social media:

> [P]eople will still update on Facebook, they update their status how women get drunk and how they smoke in public.
>
> What happened is [men] took − they were at the club or tavern, whatever − they took a picture of that woman that was so drunk then they post on Facebook. So, they were commenting on that specific picture.

4.2.5 Charlene

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Saldanha Bay	50	Coloured	Grade 12	Employed	Single	3

Charlene, a fifty year-old woman from Saldanha Bay, was left a widow with three children to care for when her first husband passed away. She later remarried but has since divorced and continues to offer a home to her now adult children. Charlene's highest qualification is a secondary school certificate. After spending a considerable period of time as a housewife, she is now employed as a property consultant with managerial responsibilities, though deeply dissatisfied with the company and currently seeking new employment. She continues to take responsibility for her children in terms of their financial expenses and much of the domestic chores. Charlene is heavily involved in her church, describing herself as its unofficial event planner.

- ***ICT access and usage***

An avid ICT user, Charlene prides herself in being amongst the early adopters of various technologies and has ensured that her children followed suit:

> I always had a phone. From the time it came out, I always had a phone […] When the laptops came out I had a laptop, although it was a cheapie, I had one. And I always had a cell phone and my kids had cell phones. I bought them phones. In primary school, they had phones then. And I'm talking about years [ago], they're 26, 27 now [...].

This keen interest in keeping up with technologies has continued over time and she currently owns a smart phone, tablet, laptop, smart television and pays for uncapped Wi-Fi in her home for her and her family. She also enjoys Internet access at the spaces she regularly frequents − mainly her workplace and the church, the latter of which has increasingly updated its operations to more modern, digital methods including replacing traditional hymn books with multimedia and installing Wi-Fi on the premises. Such "perks of the church", as Charlene refers to them, are apparently not uncommon in the area as she recounted her observations of Wi-Fi being used as an incentive to attract members of a nearby church to attend services:

> I've been to a church in Diazville and I mean, we visited there and then the pastor announced, he said: 'And remember, church starts at 10:00. But as from 9 o'clock you can come but 10 o'clock the Wi-Fi will go off.' So, they're only allowed to use the − so they get times before every service which encourages them then to come early. And they say in the church, there's a lot of people sitting in the church and around the church because they have a − I think it's an hour or hour and a half before every service to use the Wi-Fi.

Though churches in the area may seemingly be evolving into ICT-friendly spaces, Charlene holds certain personal beliefs in the type of digital activity appropriate in this setting: "Look, I've got my Bible on there as well, so I do read the Bible off there. But I won't sit in church and go on Facebook. I'm now not in that way." She is also accustomed to Wi-Fi in public places like the local restaurants she frequents and notes that this has become an expectation within the community:

> Like Hoedjiesbaai we like to go and have lunch there on a Sunday. And they've got it permanently stuck up there, Wi-Fi password, it's there. So, if you get into the lift you see the notice and you see everybody starts putting it on their phone and there they go. So wherever we go, in restaurants − I heard the other night in Spur people asked the waitress 'Can we have the Wi-Fi password please?' So, that's the norm now. Everybody believes they must have a password. There must be Wi-Fi.

Charlene has capitalised on her multiple devices and points of Internet access, thoroughly integrating ICT into all aspects of her personal and professional life, though she primarily relies on only a few communicative features: "For me I say, as long as I can phone, WhatsApp, SMS, that's it […] As long as I can do those three things on my phone then I'm happy [...] And get my emails." These channels are used to maintain contact with family and friends, church members as well as clients in her professional capacity. For Charlene, the most important of these are the former groups as she explains: "I look at my personal and the church. I tend to move more into that way when I'm using

it." As a housewife, she relied heavily on the Internet as her means of connection to others, specifically email given that this was before the era of texting platforms like WhatsApp. When her first husband died during this period, her mobile phone became more than a mere tool for communication but a crutch heavily relied on for emotional support:

> I used to SMS like crazy. And even phone, I wasted a lot. Because that was just after my husband's death. And for anything, I would phone my sister. Because I didn't want to use the landline because I'd want to lie on my bed or on the couch and I would talk endlessly.

Interaction via phone calls, emails and WhatsApp are used for a multitude of purposes in her role within the church leadership, including in conveying encouragement to members and in communication in an organisational capacity for the many events and activities taking place. In her professional capacity, electronic correspondence with clients is a key component of her daily activity, though conducted much less enthusiastically. WhatsApp (messaging and calls) is the primary channel for this work interaction, and is even used to conclude business deals. According to Charlene, this is in fact the preference of the clients who consider it the most cost effective and convenient measure:

> [T]hey don't want to spend money on a call. So, they use WhatsApp and we actually − I mean, I've done a deal now via a WhatsApp call […] It's amazing. But I've got a lot of clients that are not so into emails either but they would WhatsApp […] Lots more the clients are more into the WhatsApp [...] since WhatsApp has come in they are all on Wi-Fi at the workplace or somewhere. And then that is how they go about it.

Charlene also relies on ICT in her work setting to assist with her many administrative tasks, stating: "[ICT is] supposed to lighten my job where I don't have to write down everything, like before we used to write the letters, now we can just go and sit in front of a computer, type it." Due to "a very old system" at work with "slow computers" she often also uses her personal devices like her tablet and laptop in this capacity. While Charlene's occupation does not appear to call for much information-seeking on her part, finding a new job does. Despite her affinity for technology, this job-seeking is conducted via older, more traditional methods, namely newspapers and word-of-mouth: "I've obviously watched the papers and word-of-mouth too. Because I've told like even my clients that come there, I tell them I'm looking for another job, I'm looking." It is also via these channels that she receives much of her information regarding news and local occurrences: "A lot of − I find like this morning, two people were talking in the office about things that happened. About this old lady that was shot or something, murdered. News like that I will hear [via word-of-mouth] and then the local paper." Her reading of the local newspaper is less out of personal preference and more due to being "forced to read it" as she agreed to translate the content in the Afrikaans publication and relay it to a ninety year-old client of hers. Television is another source of gaining news although only on the

chance of her happening upon it as she explains: “there’s never time that we actually have the 7 o’clock news or whatever time. That news we don’t watch.” She is, however, an avid television viewer, often having her multiple sets switched on simultaneously while she moves around the house performing other activities:

> [W]hile I’m getting done, Expresso is going. I’ve got a TV in my bedroom and in the TV room. So, between the two, you know?” Because the TV room and kitchen is open plan so when I’m doing cooking or cleaning in the kitchen or even washing the laundry, I still you know, pick up. So, weather and little bits and pieces like that. And you know that little bit of news, they have news headlines that I would now be able to − just on Expresso.

Her fondness for television has grown after upgrading to a smart television, along with subscriptions to dedicated streaming channels, Netflix and Showmax. This has also substantially increased her use and appreciation of YouTube, which she enjoys viewing on the larger screen:

> Because of us having [YouTube] on the TV as well. We’ve got now uhm, what’s this − Netflix and all that. So, all of those come up. So, occasionally I go in and check something on YouTube at home as well because it’s nice watching it on the big screen instead of just on your phone […] So, ja. I actually do use it quite often now. But on my phone, maybe like twice a week or so I’ll check something on my phone.

Despite her fondness for more familiar mediums, Charlene also views the Internet as a source of information, describing herself as a fairly frequent user of Google as a search engine and is well aware of its pervasiveness in modern society. The subjects of her searches often centre on her church activity, including reading up on sermons, scripture readings and inspirational content. Charlene’s online behaviour appears to be changing recently with her not only increasing time spent online but allowing herself to explore beyond the specific content which she had originally set out to find and be drawn in by unexpected videos and articles she comes across during this process:

> [L]ast night I was actually amazed at myself, my daughter said ‘Mommy, are you really looking?’ I said, ja. I just randomly − I was looking at things and then videos popped up and I started watching things like that on YouTube. But even Google, I was just − whatever came to mind, I just looked up and read a bit about that.

Random information of this sort most often reaches Charlene via social media, specifically Facebook. She was an early adopter of this application and is an avid user logging on multiple times daily. Her use of the platform is largely passive in nature, mainly revolving around reading friends’ posts and following links to content she finds interesting, useful or inspirational: “I mainly follow those links on Facebook when they got about health. I would click on the link and read a bit about it. The remedies and that type of thing.” She also states: “I like to read up. There’s a lot of interesting articles.” This is mainly that shared by people with whom she is familiar and not via recognised publications or official

Facebook pages, which she does not generally follow. Though not often, Charlene does upload content like images at times and has an affinity for photography. She has no reservations about uploading content of this sort unless she is personally reflected in the picture, due to her poor self-image and insecurity relating to her weight:

> I will post articles or something, but not [pictures of] myself. At the moment the image is not good so I don't post myself […] I'm not into selfies because like I say, at the moment, there's a problem with the weight and everything has expanded so I don't put on Facebook things.
>
> I love taking of others. And if we're in a meeting especially, I normally take pics in the church, taking pics of what is happening. Because I feel that is at least the memories that we can store. And here and there I do upload those things on Facebook, like I said not of myself, but of the others I will take.

Facebook has also been incorporated into a long-time hobby of hers, namely scrapbooking of "ideas" related to topics of interest, usually food and décor. This began long before the age of technology but since her adoption of ICT, her means of finding, collecting and storing content has evolved from traditional media to the Internet and her computer:

> [I]f I see something nice, say on Facebook too then I save that pic for an idea for another time […] So, I'm very – I like reading up on those things – décor, catering – and trying to do something with it. I'm not that much like now currently but previously I used to – when my kids were smaller we would watch something on TV […] I still like to save those ideas […] So, I've got all these little folders even on my laptop, where I like to go back and see oh, yes. Looking for an idea in that colour scheme, what can I do there?

She also uses social media in her professional capacity to market the company via its Facebook page: "[T]he way we advertise at work now on Property 24 and all and Gumtree and we can link it on our Facebook or post the link on our Facebook. So, for that reason I also use it for work." Ultimately, Charlene's use of social media has evolved greatly from being merely a "game" to pass the time at work. Logging on to Facebook on her mobile phone is now her immediate reaction in any moment of boredom and restlessness, an activity engaged in while simultaneously occupied with something else (watching television is, for example, usually accompanied with using Facebook), as well as the means of occupying time when struggling to sleep:

> [W]hen it's time to relax maybe and watch TV then I will just go on Facebook or do things on my phone. Because I have the tendency that I can't sit still. Like I say, if I wake up during the night and I can't sleep, it's Facebook. And I read everybody's things or I check everybody's WhatsApp profile.
>
> I do use it for when I'm bored, the phone. And you know the other thing, being alone also. My kids are big. I don't have a boyfriend or anybody in my life, so it keeps me company.

In this sense, due to spending a significant amount of time alone, Charlene's mobile phone has largely become a main companion of sorts. Her dependence on it is reflected in strong feelings of annoyance, frustration and discomfort when without it, evident in her statement below:

> I do feel I'm lost without it […] Then life will stand still […] I went to Cape Town one day and I forgot my phone. I was irritated! […] I didn't have the Tablet that time yet. And I just felt, no now we can just get home now. I couldn't turn back when I realised it because we were late.

She acknowledges that this dependence on her device may have reached somewhat of an unsociable and unhealthy stage, perhaps more embedded in her life than she would prefer. For instance, it not only occupies her nights when she is unable to sleep but is in fact also a reason for her lack thereof:

> At times I do feel there are − I am also a bit too much on the phone. I mean, during the night I don't put my phone on silent. I was − last night I was answering emails that clients were sending me during the night. When I heard the phone, I checked, okay. Then I answered. So that I feel is a bit bad. And it becomes unsociable, I know.

Her intensive use of the device sometimes results in something of "phone fatigue". She explained: "[A]t times when I come home and I've had those busy days on the phone for a few days, then I will just leave it. And if it was in my bedroom or in the kitchen, it didn't matter to me."

As a single woman who spends much time on her own, Charlene values her mobile phone for its function as a safety measure:

> [J]ust the fact that I know there's something that I can, irrespective what, I will always be able to − it's a way out, so to speak. Let's say I'm lost then I can go − I went to Mossel Bay alone now last year. So, one of the guys here, every time I was [asking him] 'Am I right now? I'm here.' And he was so accurate, like he would tell me, 'Just look, there's a table along the road and the chairs. There's a yellow box there.' And I mean, it's far from here but he was able to. And that made me feel so safe and secure. And I feel if anything happens to me on the road, I just have to phone. I had a tyre burst out here on this R27, phoned the police immediately and they came to help me, and it was like 00:30 in the morning. So, you know I feel it must, my phone just has to be [on hand].

She also capitalises on the Internet's potential to ease everyday processes like banking, using both her phone and laptop for this purpose: "I do internet banking from home on the laptop. I do it on my phone, and if I'm in the office and something needs to be done, my personal, then I'll quickly go in and do an EFT."

- ***Influencing factors***

Ability and confidence

Charlene's substantial use of ICT on multiple devices across the board reflects a certain level of skill and ease in engaging digitally. However, she clearly identifies a lack of knowledge on her part as the primary factor in limiting her current range of use:

> The knowledge of it [limits me] I would say. There's some things that I'm not that familiar with, it's not – to me, I would say – not user friendly. Like maybe − it is like − if I look how other people use it but it's because of their knowledge of it. Now, my knowledge isn't that great. Because I've never been for any computer training or anything like that. Although in my work I use it all the time, I'm not fully trained to do certain things on the computer. So, I think because of my lack of knowledge, I tend to think sjoe!

It seems that she may believe that some more formal computer training is necessary to progress beyond the skills she currently has and the activities she is able to engage in. Her self-perceived lack of ability extends beyond the computer to her mobile phone, even though it is thoroughly integrated into all aspects of her life and she has a high level of dependence on it: "[M]y [level of skill with the] phone is exactly − it's about the same [as the computer], basically the same." Charlene's lack of ability (real or perceived) is reflected in multiple aspects of her digital use often resulting in a sense of frustration: "[R]eally I feel even with the phone there are certain things, like now with those files I couldn't and I was getting frustrated. Because people were sending me things and I can't open it."

When questioned about using any additional social media platforms, her response of "No, I'm not that clever" suggests that she is somewhat intimidated by such technologies, as well as a belief that she lacks the skill or knowledge to use them. This is somewhat odd considering her comfort in using Facebook. It is plausible that given her long-time familiarity with this platform she may not be aware of the similarity between these applications, and views any newer unfamiliar technologies as advanced, complex and intimidating. This poor perception of her ability and self-deprecating talk is continued in her response to using a resource like a GPS navigation device which she had previously purchased for her frequent travels but makes no use of: "[T]here I am useless with that […] The only GPS I got is my phone [to call someone and say] – 'Hello, I am here. Please tell me where [to go], explain to me.' And that's how it goes […] I am very stupid in that way." Charlene's lack of digital ability may therefore be limiting her ICT use. However, it is largely her own perceptions and beliefs that she has a poor skills-set and as a result of this a poor level of confidence in her capability (and perhaps even her own intelligence), which is especially influential in restricting her range of use.

Social support system

Charlene is surrounded by a digitally active social circle which has influenced her own engagement, for example the pervasive use of Google amongst those with whom she regularly interacts has driven her own engagement on the platform: "[E]verything you ask people nowadays, 'Just Google it, Google it'. So, everybody I feel, the crowd that we sort of involved with, they are quite also into Google. And that makes that I'm also making use of it." Similarly, after hearing about some websites from members of her circle she explains: "it made me go onto there because then I want to know what goes on there". It was also via a work colleague that she was introduced to Facebook, initially described to her as "a game". The colleague has been helpful in providing Charlene with instruction and assistance at times as she explains: "[I]n the work place, like with my colleague there [...] when she comes to the office, then she will say no, it's okay I will show you then you can make the notes."

While Charlene often downloads and purchases new technologies, she generally makes no use of them claiming: "I keep forgetting. I have downloaded quite a few but I keep forgetting to make use of it." Rather than forgetfulness, the more likely explanation for such non-usage is Charlene's acknowledged aversion to independent learning and exploration of new applications: "I'm very much, you know, I pick up the phone and ja. Just tell me what to do. Don't let me still go and look and read it up." A support system is thus particularly important to broadening her range of activity given that she relies heavily on initial instruction and/or demonstration by someone knowledgeable, during which she should be allowed time to process and internalise the new information while taking her own notes. It is only following this process and with the assistance of these notes that she will make any attempt to perform the action independently. She explained:

> I like if somebody tells me, then I want to able to − okay show me but let me just make a note so I can do it on my own and refer to my notes rather. Because a lot of things that I've learned on the computer, I used to − okay, show me, right and let me make a few points about it. So, when I have to do it, like even photos we used to take and first how we have to download it and transfer it onto the computer but then we still had the camera and you know, transfer that? I made notes for myself and eventually I could do it on my own because I got used to doing it. So, that is how I feel. In the beginning I want to make a note.

Given her dependence on this particular learning approach, it is unsurprising that she considers formal training important. Since she has not undergone any such training, it is the informal teaching she gets from her support system which allows her to develop skills and broaden her range of use. Ideally the crux of this support system and Charlene's main source of guidance are her two adult sons, both of whom live with her and are reportedly highly digitally competent. Unfortunately, their assistance is usually provided in an impatient manner which leaves little time for any note-taking or

internalising of the instructions. Furthermore, it is also accompanied by a host of insults. For instance, Charlene is often told she is "stupid". For this reason, she has resorted to a strategy of 'playing dumb' – pretending as though she knows less than she does – in order to get her sons to perform digital tasks on her behalf, rather than requesting they teach her and then being subjected to insults:

> There's things that I will give to the kids [to] just do, like last night he said 'No, to open this file, Mommy you need to download the app.' I said 'Now, just download the app. Don't –' Now I'm saying, 'Oh, where must I go?' But I now knew where I had to actually go, so I said 'Oh, must I go to tools?' [He says] 'No! Stupid, you must go to Play Store!' Now that you know? But because I now knew if he just downloaded the app and do it, it would be quicker and be better because if he's going to tell me go to Play Store then go to this and go to that, then I know it's a problem. Because of their attitude. They're always moaning and groaning, 'Mommy, you stupid.' I hear it from the start. So if I'm so stupid I don't want you to still explain. Just do it [...] Because of their impatience […] If they want to show me, there's no time for a note because then I already hear I'm stupid. So, stupid stops and stupid gives it to them. Just do it.

This is in stark contrast to the attitude and approach of her colleague who occasionally assisted her:

> She was very witty because her kids used to sit with her and explain. Now when she comes to the office, then she will say: 'No, it's okay I will show you and then you can make the notes.' So, then I don't mind if I can't get to it, there was somebody that would guide me through it. But on the other hand, if you're impatient and scolding then I feel you just do it. I'm not going to make an effort then.

It is telling that she interprets her colleague's advanced knowledge as a direct result of having children willing to patiently assist her – unlike the counter-productive environment created by her own sons. In addition to their lack of helpfulness in providing guidance, Charlene's children also attempted to discourage her from certain digital activity, specifically engaging on social media, considering it as being inappropriate for someone of her age: "[When] I started off – I mean, the children said: 'Mommy please. You're too old for this now because we don't think you should be on.' So, I said okay. But mommy was on Facebook before all of them." Her colleague's encouragement, however, led her to ignore their negativity and create a Facebook account. Therefore, a digitally active social circle and support system positively influences and extends Charlene's ICT usage. However, impatience and negative attitudes of those closest to her inhibit her learning. While these individuals may ensure that the digital task Charlene requires is ultimately successfully completed by doing it on her behalf, this prevents Charlene from learning and becoming digitally self-sufficient.

Interest

Charlene has a keen interest in participating in digital society and demonstrated her enthusiasm at the prospect of improving her knowledge and increasing her range of activity: "I would love to − for years, I've always said I want to go and do a course but it never happened either." There does, however, appear to be a mismatch between her expressed interest in becoming more digitally active and taking the necessary steps to do so. For example, while her interest has led her to acquire technology such as a GPS navigation device and many mobile applications, they have not been used. This may in part be related to a reluctance to take action independently, explore and make use of technology – even once it is already in her possession: "I'm very much you know, I pick up the phone and ja, just tell me what to do. Don't let me still go and look and read it up." In her earlier comment regarding enrolling in an ICT course, her choice of wording in "it never happened" rather than a more personally accountable statement such as 'I never did it' suggests her waiting for something to happen to her rather than taking any action herself. Charlene herself identifies laziness as a factor in limiting ICT usage (for her and others), acknowledging that she has all the access and resources she requires yet is not capitalising on it to the extent that she could: "It is available, so it's the lack of interest or the laziness, whichever you want to [label it as]. But I mean it **is** available. And if I look at me − work, I've got the Wi-Fi, home, we've got Wi-Fi and at church we've got Wi-Fi. So what is really stopping you?"

Time

A significant amount of free time seems to be a substantial contributing factor in driving Charlene's ICT usage. This was perhaps even more so during her period as a housewife, reflected in the rather exorbitant monthly bill she reports receiving then, which is substantially more than her current spending:

> [W]hen I get my bill, it was like 3000 SMSes I sent for that month. I used to SMS like crazy. And even phone, I wasted a lot [...] I used to spend so much money. I always say I had more money when I wasn't working than now that I am. Because I used to get a cell phone bill honestly of three or four thousand rand and now it's one thousand. But that time, I used to − and I did have the money so it wasn't − the money wasn't the issue. But I really used it and I used to sit on the computer.

Following her husband's death while she was unemployed, Charlene's phone and computer became an even greater means of occupying an abundance of free time and sleepless nights: "[N]ights when I couldn't sleep, I'd sit whole night looking up and checking, reading, that type of thing." She described her significant use of ICT before working as greater than that of now while employed stating: "I used

it more then, because it was all the time." However, her current employment does not influence Charlene's time for digital engagement. She reported that with her children grown and her having no romantic partner, she has an abundance of free time: "My life is boring as such." Charlene depends on ICT to fill this time and uses it as a crutch for significant periods of boredom and loneliness, making it a companion of sorts: "I do use it for when I'm bored, the phone. And you know the other thing, being alone also. My kids are big. I don't have a boyfriend or anybody in my life, so it keeps me company." Her declaration that Facebook "takes too much of your time" does not relate to her lacking the time necessary to engage with ICT, but rather a disapproving reflection on how much of her own time this social media platform is currently occupying.

Concerns and negative perceptions

Online risks and issues of safety and security are not particularly concerning for Charlene or something she dwells upon. She describes proceeding with caution in certain online activity, for example being "careful" not to "click on links and that type of things from the banks". However, she notes that any hesitation she may have in Internet banking and security threats has not altered the manner in which she engages online: "I actually don't worry about it in that way and say it's not safe. Although I'm just a bit careful now with my banking obviously because I've now had a few incidences. So, I am I feel cautious but I'm actually not taking caution, I'm still doing it the very same way." Negative experiences, however, have left Charlene firmly opposed to other electronic transactions, specifically online shopping.

> I've burned my fingers that way so I don't do that […] I have done it twice actually and both times it didn't work out […] I tell you it was a big, just one big mess when the thing had to be sorted out […] I swore I would never do it again. I'll never do online shopping again. And especially once you give your credit card. I remember the one time I also wanted something. I purchased and I gave a credit card number and there were loads of things that went off on my credit card, which I never ever got. So, the bank couldn't help me. I took mighty long to pay that money back.

One significant concern Charlene previously held, related not to her own wellbeing but that of her (then younger) children upon discovering that her adolescent son had been spending significant time viewing pornographic material on the home computer.

> I remember when my son […] he was the quiet one and then we had this problem that […] our bundle was finished or something and then we had this computer checked out because [we wondered] where is [the data] going? And then I was actually shocked and I thought to myself, is it now a bad thing that I've got it? Because the sites that came up − really now! I was so shocked to see it […]

The incident appears to be the only time Charlene ever questioned her decision to have a computer and the Internet within her home and even somewhat considered removing these resources, recounting: “I was angry and to me it was a bad thing. And I felt I don’t want the kids using it, I want to stop this.” Her own attachment to the computer and Internet – very much embedded in her life by that stage – made her highly reluctant to deprive herself of these technologies and ultimately outweighed any reservations: “I thought no, I’m used to it […] And I wouldn’t stop it […]” In retrospect, she believes this to have been the appropriate decision with the justification: “[E]ven if I had to hide it from him or say you’re not allowed to use it there, they would have gone to somebody else.” While it is likely that Charlene believes this to be true, it is also possible that she may have used such reasoning to rationalise and defend her decision to keep the technology within the home for her own gain. At the moment with her children grown, explicit content does not at all affect her view of the Internet. She believes that adults should be free to view whatever they choose and that while certain content tends to randomly “pop up” while online, it is easy enough for her to ignore and scroll past: “That’s not what I’m looking for there, so it doesn’t bother me.”

One of Charlene’s only real current concerns or negative views with respect to ICT also relates to her children. While considering her own use of ICT to be unsociable and somewhat unhealthy at times, Charlene also observes such intensive use amongst her children and worries that this negatively affects their familial relationships. In her view, technology significantly interferes with and even replaces traditional human interaction. For this reason, despite her great affinity for ICT, she has actually welcomed a loss of connection at times as it “forces” face-to-face engagement:

> [O]ur lives are very much consumed by this. The internet and all these things must be there. So, I think we must also know, we must − sometimes I say to them, let’s just sit and talk because we don’t talk anymore. We would be in rooms and then we’re sending WhatsApp’s to each other. Which is − it’s become very bad. So, if the Wi-Fi is off and the data is not there it will force us to do something else, I think.

As attached as Charlene is to technology, she is well aware of its imperfections and has experienced many moments of annoyance and disappointment “when the technology fails”. The following extract illustrates a typical moment of such failure for her:

> Yesterday or the day before, I had a client that walked in […] I needed to print a contract or a lease and this wouldn’t open. The file just didn’t. And I’m trying different ways and then I panicked but the client is sitting in front of me to do it […] I’m feeling embarrassed here in front of these people. So, at times like that, I feel the technology fails me. And we still don’t know what was the problem. It just wouldn’t open but eventually it opened and it was business as usual.

A similar experience occurred when her mobile phone malfunctioned during a church event she was involved in organising, at a time when maintaining contact was most necessary: "…my phone decided it wasn't going to go on [...] I rebooted the phone, nothing is happening […] it frustrated me, the time that I really needed it [...] That's what gets to me." Both of these examples constitute moments when ICT was particularly required and so this is unsurprisingly when her frustration with technology is most heightened. Fortunately for Charlene she has access to multiple devices and is able to revert to her tablet or laptop when her mobile phone fails her – even though she does not enjoy using these devices in the communicative activity for which her phone is used. She continues to view ICT in a positive light "in spite of" these disappointments.

Affordability

The range of devices owned and the services subscribed to by Charlene (primarily on a contract basis) as well as her financial undertaking of the ICT use of others within her household indicate that costs are not a significant concern or deterrent for her. This is also apparent in her views on the affordability of Wi-Fi: "[I]f you look at the Wi-Fi for example, I feel we're getting it at a reasonable price now." In addition to her own home, the Internet access at other spaces she frequents – work and church – also alleviates her costs: "[I]f I look at me − work, I've got the Wi-Fi, home, we've got Wi-Fi and at church we've got Wi-Fi. So, what is really stopping you?" Charlene's indifference to expenses are perhaps best reflected in the following extract in which she acknowledges her substantial spending as well as the limited role money plays in her usage: "I used to get a cell phone bill honestly of three or four thousand Rands and now it's one thousand. But that time, I used to – and I did have the money so it wasn't – the money wasn't the issue."

Environmental constraints

Network difficulty previously posed a challenge for Charlene in using her mobile phone, though acting as more of an inconvenience (restricting her engagement to certain spaces within the home) than in completely preventing her from communicating: "There was a time that nobody wanted MTN. Because once I'm in my house it was a problem and I used to hate it because now I have to go stand at a certain angle in my house because we know the towers are that side." This situation has since improved and she experiences far fewer issues related to signal. A greater frustration for her and possibly even more so her children is Wi-Fi outage though this is understood as something related to the weather and cannot be helped.

> [O]bviously when the wind blows then we do have a problem with it. But it's not as bad because I know last night, when we got home I said, what's happening now? I couldn't use my Tab because the data's up but the Wi-Fi wasn't picking up. And then as the kids started coming home, everybody was going on, 'We can't watch Netflix, we can't watch Showmax' […] I think for two, three hours, we just couldn't use the Wi-Fi. But eventually, it came back again […]

Though frustrating, these experiences play no significant influencing role in Charlene's usage.

- ***Charlene's mental model on gender and ICT***

Charlene observes a pattern of unequal power relations between men and women in her community in which women are viewed as inferior: "I think people still think men are more important and – Yes, there is a difference. They see women as here and men there[8]. That's what I pick up in the community." She describes a very different trend within her church which has become a predominantly female space where women tend to take charge, adopting leadership rather than submissive roles and are confident in expressing themselves:

> [I]f I look at it again in the ways of, say at the church. I see in a lot of churches here, there the women are taking over because there's very few men. And then there we also get to see that the women are the − how can I say − We accept them basically as the stronger sex, the stronger ones [...] Because there they have their say.

She also observes this empowered state of the church women reflected in their ICT usage, noting them to be the particularly active users within this setting – to her surprise even the elderly women.

> [I]n our centre it's the women that's on their phones. The women are Google-ing. I was shocked at some old people. She said she is 'goggling'. 'Goggling'. I said, 'what are you goggling?' 'No, this here.' It's Google, but you know the very fact that they are making use of it. And some are older people also.

In her personal experience, early adopter Charlene was a more active ICT user than her ex-husband who only began engaging at a much later stage and is described as having very poor digital competence: "[H]e didn't know where − he used to look at it like 'Where does this thing go on?' And he couldn't understand. Like the laptop, it wasn't used when it's plugged into something, he didn't understand this type of thing. He was very − on another level." Charlene's ICT usage was in fact a main point of contention before their divorce. Her ownership and use of mobile phones and computers caused him great frustration and according to her made him feel somehow "inferior". His response was to behave in a way to attempt to re-establish some sense of authority as the male in the household by showing "he is still the man" and "the one in control":

[8] Charlene drops one hand to indicate "women as here" and raises the other hand high up to indicate "men there" in attempting to illustrate male superiority.

> [T]hat was a big issue in my marriage, for example. And again, he wasn't an educated person. He had left school at Standard 7, 6 or 7[9] so he wasn't a very educated person. His reasoning was on that level, you know? And between the two of us it was always − He never had a phone until basically here in the last years that we were together, but in the beginning I always had a phone. From the time it came out, I always had a phone. And I used to SMS. I mean, he used to get irritated at the fact, when he just saw me with the phone it was an issue. And he felt − I think he felt inferior. But his reaction was to want to show, you know the ego, showing he is still the man, he is the one that's in control of every situation. Although it wasn't.

In this case, ICT appears to have brought to the fore an underlying power battle in the relationship. Her then husband's opposition to her usage and his insistence on being recognised as the authority only served to strengthen her desire to rebel and increase her use of ICT, which she took even greater pleasure in doing, often without him knowing.

> I felt it was mine and I could do with it what I want to and I was free to do it. And if you tell me − I'm like the naughty kids so if you tell them don't do it, they will do it. Now, I was in this group and they all said they hear about people that go onto these sites and things. So, it made me go onto there because then I want to know what goes on there. And there was a time, cause he worked shifts and I used to go on there. And I never felt guilty about it. When he wasn't at home, I used to go check out what's happening on these sites. But that's years ago and I have no interest to do it now but at that time, because you think I'm doing negative then I will go and do it. It makes me want to know what's going on there.

Charlene's reference to her ex-husband's poor level of education and correspondingly poor reasoning skills alludes to her strong perception that education and socio-economic status relate to ICT usage and that the lower status of her ex-husband in this regard contributed to his opposition to her digital engagement.

> [M]y family is that type whereas his people, they not. They come from a different, different community. They grew up in Elsies River, Bishop Lavis. Not that there's anything wrong with that because I believe there's a lot of good people that come out of there too. But they had that mentality: 'this is where we come from, we are that.' So, they didn't − I mean even the kids who were clever, good students, it came to a point where they just gave up and said 'No we are not going further'. So, that mentality was different and that played a big role because if I had gotten a call, [he would say:] 'Why must you be on the phone?' And that was always the − issues like that. And when I sat with the computer 'What are you doing? Are you on dating things?' It was always a negative. It came across negative.

This suggests an association of lower socio-economic groups with a mentality of complacency and lack of ambition or effort towards progression. In her opinion, this characterises her husband and her use of technology may have been threatening to him as a symbol of her progression while he remained behind. The extract also indicates suspicion by her husband in his questioning of "Are you

[9] Grade 9, 8 or 9

on dating things?" Charlene firmly believes though that his opposition to her usage was not borne out of jealousy but a strong sense of "intimidation". She believes that amongst groups of lower socio-economic status, there tends to be a greater investment in gender norms and distinctions between men and women and, along with that, a more significant perception that ICT is the domain of men.

> [T]here are various groups of people. Uhm, I don't want to say lower class but you get the people that's just plain, you know this level[10]. Then they would tend to say no, [ICT is] just for the men. But then you get those who are actually more into the secular world, like the – or into their jobs and that type of thing. And there again, it's actually [considered to be meant] for both [men and women].

While Charlene does not perceive males to be the more skilled users generally speaking, she does observe this to be the case in her own circle where the men in her life – with the exception of her ex-husband – such as her sons, brothers and brothers-in-law tend to be more knowledgeable and digitally competent. Her rationale for this skills disparity is that they have typically undergone more training than the women.

> I wouldn't say it's always the men that know more but the ones that I've actually come to deal with, I feel it was more the male […] I'm not quite sure why they – but I think it's more just the ones that I've come in [contact with]. Like, if I look in my family, it's the brothers-in-law and my brothers that are quite computer literate. And they've been on training and things. So, if I look just in that way it's because they are trained to do it.

When probed on possible reasons for this gender difference in undergoing training, she acknowledges that she observes women to be "definitely" less interested in ICT and related learning opportunities than men. She does, however, make an age distinction here, believing this to be true only amongst women of her generation: "Well, the younger ones are not different, but like my age group, those who are five years younger than me and ten years older than me, the females tend to not be interested."

4.2.6 Grace

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Mitchells Plain	21	Coloured	Grade 11	Student	Boyfriend	1

[10] Gestures with her hand by dropping it to the ground to indicate a low level

Grace is a 21 year-old unemployed woman who, along with her two year-old daughter, resides with her parents in Mitchells Plain. The home is also shared with her elder sister and her own young daughter. Grace is in a relationship with the father of her child who is employed as a welder on a seasonal basis. Having left school before completing her final year, she has since been unemployed however recently enrolled at a local college and is in the process of obtaining her secondary school certificate. She intends pursuing a qualification in Educare in hopes of becoming a crèche teacher. Grace's time is generally divided between her current studies, household chores and spending time with her daughter, boyfriend and friends.

- ***ICT access and usage***

Having owned four or five mobile devices since acquiring her first phone early in her teenage years, Grace has grown up with technology firmly embedded in her life. After she elected to take Computer Applications Technology (CAT) as a subject from the tenth grade, her mother invested in a desktop computer, which Grace then used for her studies as well social and entertainment purposes. This exposure effectively advanced her use, dependence and comfort with technology. This dependence, primarily on her mobile phone, is because of the need to remain in contact with her social circle (i.e. her friends and boyfriend) which is underscored by her fear of being "disconnected" and missing out on any developments including gossip and events. To keep in contact, she is heavily reliant on the instant messaging platform WhatsApp not only to send texts but increasingly to use its voice and video call features. Grace has previously perforce been without a mobile phone for a lengthy period and found it to be a "terrible" experience to be deprived of this means of communicating with her social circle.

> I can't [be without my phone] no. I've been without my phone and it was an unpleasant experience [...] It was probably [for] about like two months or so […] And that was way too long for me […] [I felt] disconnected. It was like I do nothing so nobody could reach me there. So, it was just like, it was just terrible. [I missed] just interacting with my friends and telling them like this is happening and that is happening, 'Why weren't you there? Where were you?' So, something is always happening. So that's what I missed.

Grace has become accustomed to sleeping with her phone on her pillow to make sure she does not miss out on messages or notifications: "My phone is on my pillow so when I wake up I'm just like ja. Just to make sure there's, if there is anything or if I missed anything […] Maybe I fell asleep and somebody said something and I didn't reply so, yes. It's a natural habit." She also habitually and often unconsciously reaches for it throughout the day, with no particular purpose or intended digital task in mind. Despite this, Grace is opposed to being viewed as "addicted" to ICT, considering this description as "a little hectic" and stating: "I don't want to say that". The "natural habit" of reaching

for her phone also stems from her attachment to social media, specifically Facebook. Having joined during her teenage years, she is now admittedly too invested in it to forego using this social channel. At this stage, she is often largely unaware of having logged on to the platform and does so without thought, even while engaged in face-to-face conversation with others. Content viewed on Facebook thus often becomes the subject of conversation amongst her friendship circle.

> No, [leaving Facebook] won't work, no. No, I can't […] It's been a long time now so I'm so used to it. So, even if I'm just, like, I'm in my own world but I'm going to pick that phone up and even if I'm in a conversation and I'm talking with my friends and we have something to talk about, out of no reason I'm just going to [pick up the phone] 'oh, like, have you seen this?'

Grace is assertive in her behaviour on social media, posting or sharing content frequently and expressing her opinions online with considerable confidence, stating: "I don't have any problems ja, posting or commenting. I don't have a problem with that." She finds the prospect of not actively engaging in this manner unappealing as she believes passive use of the platform and merely absorbing the content of others "gets boring after a while". Much of the content she uploads consists of photographs of her and her daughter taken on her mobile phone and edited via a downloaded photo-editor application prior to making the material publicly visible. She also intends joining several other social media platforms and is particularly eager to begin using Instagram – which she believes will be fitting given her love of 'selfies'.

Grace enjoys multimedia content which she either downloads or streams from channels like YouTube or receives from friends via digital channels. Online content, however, takes a backseat to traditional media as she notes that the television and radio "definitely" remain her main source of absorbing material for entertainment. Even so, social media serves as an overwhelming form of Grace's entertainment given it is the past-time of choice and occupies a bulk of her time. These older and more modern technologies are often in simultaneous use and her attention is typically divided between her phone and either the television or radio.

Social media is used to browse a wide range of content related to pop-culture, fashion trends, parenting advice and other lifestyle type material via the Facebook pages she follows. In this sense, Facebook is more than a social or entertainment resource for Grace and is in fact her foremost means of absorbing news and information by way of what her contacts share and what appears on her newsfeed. Despite her affinity for the television, radio and the online search browser, she neither watches nor listens to news channels or programmes, nor does she visit any dedicated news websites. She is, however, an avid user of Google as a resource to seek out a variety of other "random" information, related to whatever thought or subject may occur to her throughout the day.

The Internet thus appears a useful tool to satisfy her curiosity and she reports: "[Internet browsing] can keep me busy for the whole day."

It is noteworthy that Grace makes distinctions between the devices available to her. These relate directly to the context in which they are perceived appropriate. She perceives her interaction on social media to be private and thus prefers her mobile phone for such engagement as the desktop computer screen is considered "too big", thus "everybody can see" her actions. The convenience of her mobile phone also makes it the preferred choice for her social engagement and quick information-seeking or fact checking. On the other hand, the household computer is considered the more fitting option for consuming multimedia content – seemingly not considered private – where the larger screen size is favoured. Grace's only engagement with digital games is also done via the computer, where she relaxes with one or two pre-installed games, though very rarely.

Beyond this, Grace's only other use of ICT is the occasional employment of her downloaded Internet banking application reportedly to check her account balance. As much as technology is part of her everyday life, she still appears to use very traditional measures in contexts where ICT could be particularly useful. For example, she intends to find a part-time job soon and her primary method of finding work will be physically visiting stores to inquire about available positions and to hand-deliver her curriculum vitae (CV). Online job-seeking appears to be a secondary option. Entering into this professional context may also be one of the rare occasions she makes any use of her email account. Grace believes that it is particularly the informational aspect of ICT which will benefit her in her future career in that it could open a wealth of knowledge about child development.

- ***Influencing factors***

Affordability

While Grace initially reported that the expense of using ICT was "not an issue" and did not affect her digital activity, evidence to the contrary suggests this may be less than accurate. As an unemployed mother, her limited finances restrict her to making relatively small data purchases and though she receives some assistance from her own mother, this is minimal. Purchasing a device also appears challenging given the considerable period that she has been (rather miserably) resigned to a poorly functioning phone as a result of having to save up for a new one. The costs involved have also influenced Grace's decision to purchase devices of comparatively poor quality. Faulty and broken mobile phones appear to be a common occurrence, reflected in the fairly high number of devices she has owned over a short number of years. This was in fact a main obstacle to Grace's desired level of digital engagement at the time of the second interview. Her desktop computer had broken down and

her mobile phone had all but followed suit, with only limited functionality remaining, placing significant constraints on and forcing her to adapt some of her digital patterns. The most notable change was Grace being forced to abandon the use of her much relied on WhatsApp, which she reported was no longer compatible with her phone. However, she reportedly continues to open Facebook on the device, which now functions as her primary channel of digital communication. Grace is also hindered in broadening her range of applications and services used because her phone is now incapable of downloading. This has delayed her adoption of a much desired additional social media platform, Instagram. According to Grace, the limited functionality of her mobile phone is also preventing her from capitalising on promotional data available for streaming content, which is now being wasted.

Inoperative or dysfunctional ICT has also changed her digital patterns with respect to where she engages and how she previously mitigated the cost factor. During the first interview, Grace had reported that she had all but abandoned traditional phone calls for the less expensive WhatsApp calls. This was no longer possible at the time of the second interview given her phone's limited functionality. She also made frequent (though unauthorised) use of the Internet at a nearby school for more data-intensive activities by standing outside the premises, just within Wi-Fi range. Given that she is no longer able to update or download on her mobile device, she has ceased doing this as well. On the other hand, having previously made no use of the local e-centre whatsoever, the loss of the household computer has driven her to use this public facility for purposes like creating a CV.

The challenge of affording devices of good quality or repairing existing ones therefore has had a notable impact on Grace's ICT activity. Additionally, she reports allocating money intended for other purposes towards her ICT expenses also alluding to the challenge posed by costs. Grace acknowledges that she would be using her mobile phone more if data costs were lowered, noting: "Obviously, I wouldn't still − I wouldn't care about the price of my phone." This increase in use would be geared towards more data-intensive activities, for example consuming content on YouTube.

Resistance from partner

Grace's immediate response when the subject of challenges to ICT usage was broached was: "My boyfriend". He is consistently highly suspicious of her use of her mobile phone and takes every opportunity to inspect her device: "When he's around he just […] He will pick my phone up and go through my phone." This is a constant source of conflict in their relationship with her describing an argument which took place right before entering the interview:

> […] my phone fell or something like that. So I told him that always when he's around, my phone is either falling or something and then he told me yes, because 'ek wil hê jou phone moet breek' [*'I want your phone to break'*] […] like I know when I'm around him […] he is like 'ja, with who you chatting now?' So, I just leave my phone […] Because now my phone is going off and now I'm − I even forgot my phone is going off or I don't take note and he would go like, 'who are you chatting to?' Or 'who is that?'

As is evident from the extract, her boyfriend's suspicion and resentment of her use of her phone has him wishing she would be without a device. As a result, she opts to ignore and even hide her phone when with him. The conflict described during the first interview had not at all subsided at the time of the second with Grace reporting: "It's always a problem if I have [a phone] […] He is still the same" and "he will still take my phone randomly. I will just go to the toilet or I will go to the shop and I come back and he is sitting with my phone […] There's always an argument concerning the phones. So, that's why I rather hide mine away nowadays."

Grace does, however, report that this conflict stems "from both sides" in that given his behaviour, she checks his phone as well. However, she notes that she does not have the same opposition to his use of ICT as he does hers, stating "I'm not like that with him because I'm chilled". They also have each other's phone passwords which she is in fact uncomfortable with. Despite this opposition from her partner and his monitoring of her device, Grace reports feeling free to do as she pleases online and with her device. At the same time however, she reports feeling "very much" more relaxed to use her phone in his absence, in a sense appreciating this aspect of them not living together, explaining: "Because sometimes I feel like I have to hide my phone away for no reason." These repeated statements of having to resort to concealing her device and abstaining from using ICT when in his presence is testament to the negative effect that her partner's opposition has on her autonomy of use. It also raises the question of the extent to which this conflict might increase and thus limit her usage if/when they were to live together in future.

Ability, confidence and learning

Grace is confident in her use of ICT, reportedly experiencing "no problems", neither nervousness nor having qualms about her digital interactions. To a considerable degree, her comfort stems from having completed two years of CAT during secondary school which covered hardware and a range of software applications. She is, for example, competent to deal with much of the Microsoft Office Suite package, including working with spreadsheets and presentations, though she has not had any personal use for these programs since training. Aside from the solid foundation of knowledge and skills developed, an additional significant impact of the training she undertook is the confidence it instilled in her interactions with technology. This is reflected in Grace's current approach to

encountering new and unfamiliar digital activity. She describes her thought process in this context as: "Okay, it's new. I'm just going to try it." Grace herself associates this attitude and independent, explorative approach with her prior training stating: "I don't ask. I just do my own thing and I see okay, you must go like this, do it like that, so − It's probably because I liked CAT, so now – now I like technology." This also feeds into her rationale for the substantial difference in digital patterns between herself and her slightly older sister who unlike Grace had no such exposure and as a result is "not used to computers". It is likely this exposure to and the substantial amount of Internet engagement which underlies Grace's reported critical thinking in distinguishing what online content is trustworthy and what to disregard.

Social support system

Grace describes her friends as being equally as digitally active as she is, at least with regard to mobile technology and social media platforms. The interaction with her social circle on these digital channels is a clear driving force for Grace's ICT patterns and her need to be constantly connected. Much of their interaction transpires digitally and much of the subject matter of their conversations is drawn from these channels. Grace claims that her ICT activity is uninfluenced by that of her peers or trends. However, a pertinent example suggests this may be inaccurate. During the initial interview Grace was adamantly opposed to adopting any additional social media platform. By the second meeting, this stance had altered, with her now determined to download and join Instagram once acquiring a new mobile phone: "I just think it's – it's interesting now. Because my main thought was like, if I'm going to get my phone now I'm going to get Instagram, I need to get on Instagram. I don't know what happened, but I just changed my mind." It appears that as the popularity of a technology grows over time and becomes more widespread – particularly amongst her own social circle – so her interest in it has grown. Grace's peers, therefore, appear to have a certain level of influence over her adoption of technology. These peers – specifically her girlfriends – play another significant role in that they form a support system of sorts for one another with respect to digital engagement in the case of any assistance being required: "[I]f the one don't know and is like 'I can't do this' then the other one explains […] We ask each other yes, if we don't get it right." She avoids approaching her boyfriend for help in this regard, citing his impatience as the reason: "No, no […] it's too much questions [for him]."

Apart from being influenced, Grace seemingly plays a far more substantial role in influencing the activity of others, specifically her immediate family members – her mother, father and sister – who make little or no use of the Internet and have never used the household computer despite having had years to access it. As the only one with any substantial knowledge and experience, Grace provides the necessary support and acts as an intermediary of sorts between her family and ICT. Her

assistance primarily takes the form of her completing digital tasks on their behalf, rather than teaching and enabling them to be self-sufficient. For example, both her mother and sister tend to enquire about information of some sort and request Grace to go online, which she then does, so she can inform them of what they want to know. Though she exposes them to some online video content which she believes they would enjoy and knows they would not otherwise view, she has not effectively demonstrated how they can access this on their own.

Despite her mother expressing growing interest in becoming more digitally active Grace is less than eager to fully assist, preferring, at least in part, the current practice of simply performing tasks on her behalf. She acknowledges that one reason for her reluctance is the level of repetition required to teach her mother, which she may not always have enough patience for: "I don't think I have so much patience but okay, I try. I try but yes, I'm not that patient […] I'm like, 'Mommy, but I just told you now.'" Grace also reported that her mother may request to be taught something, but quickly changes her mind claiming a lack of time and ultimately asks her daughter to perform the task. It is plausible that she may pick up on Grace's impatience, but she may also not want to take the time to have something repeated in order to grasp the concept. Grace also notes that even after explaining certain "basic" concepts and activities, her mother has not followed up and made use of the applications on her own. This is perhaps also due to lack of the repetition necessary for her to internalise what she has been shown.

Aside from this, Grace's reluctance is also related to being less than keen at the prospect of her mother joining social media. She is opposed to her mother attempting to interact with her on this public platform and intrude on her digital space. Thus far her mother's interest in social media has been expressed in relatively vague terms, making general mention of Facebook that she is considering joining. Knowing that this will not happen without her assistance, Grace's reaction has been to either ignore these remarks or respond in a subtly discouraging manner, for example: "I'll just say 'Mommy, okay WhatsApp is fine.'" She avoids mention of other social media applications like Instagram in case this further piques her mother's interest. This alludes to a seemingly veiled belief of Grace's as to what the acceptable and appropriate digital channels are for someone of her mother's age, which she seemingly does not consider social media to fit into.

Despite all of this, Grace is conscious of the importance of practicing patience and claims to be willing to assist her mother in learning whatever she so wishes, reporting: "I don't have a problem with that […] I'm okay with helping." This holds true for social media as well, though in this instance she will not actively encourage any such activity and her assistance will only be provided in the event of her mother firmly requesting it: "I'll sit with her if she wants me to put her on Facebook or

whatever, then I will. She must [say] 'Okay, you must come show' then I will be like okay. But I'm not going to push for anything, no."

Concerns and negative perceptions

Grace's immediate response as to whether she had any concerns regarding her privacy in digital activity was a firm "no". However, further probing revealed some unease, though not significant enough to tarnish her perception of ICT. Internet banking is one such case where her apprehension is minor enough for her to ignore. Grace referred to a number of aspects of the Internet which she perceives as negative including explicit sexual content, a wealth of false information and potential dangers for children. She also recognises that social media has had a pernicious effect on the wellbeing of many young people who have come to rely heavily on these platforms for self-validation.

> Some people feel that if they don't get so much likes that they're not so pretty or they're not like this and this. And some of them – if you comment something, 'oh you don't look right' some people feel that and that's how they go into depression. Because they believe everything that people tell them on social media. They feel they must have a certain image on social media.

Ultimately, none of these issues are particularly bothersome to Grace due to her belief in freedom of expression online (and that people are free to view content of their choosing which bears no influence on her), as well as individual choice and personal accountability in online behaviour rather than blaming the technology itself. According to her, personal safety is compromised by one's own overexposure and "too much information that you put out there." This implies an individual having control of their own online safety which leads her to be comfortable in sharing content and expressing her opinion on public platforms due to her confidence that she "won't post anything reckless." It is noteworthy that she does not consider uploading images of her daughter nor interacting with strangers on social media as overexposure or reckless behaviour. Grace is, however, somewhat more unsettled and concerned about her activity on being informed of the recent Facebook data privacy breach (seemingly not having known the severity or extent of the situation). She commented: "Wow, really? That's like I can't chat everything on Facebook anymore." However, her overall perception of social media remains unchanged.

Grace believes that her digital behaviour along with that of her social circle has reached a stage where it interferes with – and has in fact changed the nature of – traditional social interaction. During face-to-face conversations, each individual now sits occupied with their mobile device.

Though reporting that she disagrees with this practice in theory, it is not a habit which she believes will change, particularly as services, applications and content online continues to grow.

> […] we're all sitting here but we've got to take out our phones. Okay yes we're talking […] There is a conversation but we're just in our phones and I think that is really bad. But it's not a habit that's gonna quit because there's getting much more stuff online so what can we do?

Her view that ICT is a catalyst of sorts for unsociable behaviour does not seem to really trouble her. What she does find worrisome and unsettling is the impact of technology she foresees on society in the future, particularly in terms of job losses: " [Technology is] fine now but in future it's going to be taking away jobs and it's going to be a huge change, a drastic change for everybody." Despite this, Grace believes she has no control over this and that regardless of any such looming threats, ICT is indispensable: "[W]e have to move with the times nowadays. Because it's no use in saying 'no, I can't, I can't' but it's going to be like that so you can't change anything."

Overall, Grace has a highly positive perception of and interest in technology, describing herself as "a very curious person" who "[wants] to know what's happening". She expressed an openness to doing further digital training and reports that she would enjoy an occupation involving substantial interaction with ICT: "I would actually like such a job because I like that. To me it's very interesting, technology is interesting so I would be on the – if I had my way I would be sitting in front of the computer the whole day." However, despite her professed interest in it, Grace has no real desire to pursue an education and career in the IT field. She would seemingly enjoy a profession requiring an extensive degree of interaction with technology, yet not one where the focus is on technology and technical components. This leads one to question the apparent distinction between Grace's positive perception and attraction to technology within a general user context, as opposed to a technical career context where her enthusiasm appears to sour and the initial appeal disappears.

Environmental constraints

Grace is occasionally annoyed by network difficulties identifying this as her main issue with her phone (prior to the device breaking): "Sometimes it just takes a little too long on the network. That's the only problem I have with my phone sometimes. The network is messed up." This is, however, a minor issue in that it does not have any substantial effect on her use of ICT.

- ***Grace's mental model on gender and ICT***

Grace's belief that there should be equality between men and women in society is mismatched to her observations on the reality in her community. She reported that men continue to be viewed as superior and that many have not adapted to a more progressive mindset.

> They say men and women are equal like − but the majority [of] the people are still 'no, men can do this' and 'men can do that' and there's still, it's still like that. It's still the same even though people say it's not like that, I think it's still the same […] I think [they should be considered equals], it should be like that but I don't think everybody's opinion is the same like that.

Further probing, however, revealed Grace's support of certain traditional gender norms believing that men and women should be held to somewhat different standards, specifically with respect to work in that employment should be a requirement of men and more of an option for women. This may stem at least partially from an observation that employment amongst men appears to be on the decrease. Where ICT is concerned, Grace does not see any gender differences, perceiving ICT as equally intended for and used by males and females. Her perceptions appear to be based on her observations of people her own age, specifically amongst her peers. Considering her female friends to be avid ICT users, Grace does not see any difference in their ability or their frequency of use in comparison to males her age, including her boyfriend. She commented: "…all my friends that I've got, everybody is equal on that level." Her young daughter's eagerness to use Grace's mobile phone whenever possible corroborates her belief that young girls are interested in ICT. Her belief that girls and boys are equally encouraged to use ICT probably also stems from personal experience. She faced no opposition from her parents in opting to enrol for the digital training course at school and her mother showed her tangible support by purchasing a computer especially for this purpose. Grace's perception of no gender differences also appears to extend to the older generations in the sense that she views both men and women of these older ages to have generally limited ICT interaction. She does, however, observe a minor difference regarding her parents: her mother's digital interaction is slightly greater than her father's in that unlike him, she capitalises on the Internet for social purposes (though only in the use of WhatsApp for instant messaging).

While Grace does not perceive gender differences in ICT use, she does believe some distinctions are evident in the online identities and purpose of use between males and females. According to her, women intentionally opt to present themselves in a sexual light in the digital space, exposing their bodies in effort to gain attention and use the Internet as a tool for self-validation. She does not believe that men resort to this.

> I just think that women feel the need to expose their breasts and stuff a little too much for likes and comments and for attention […] Like, women feel the need to expose themselves to be liked or to be told that they are pretty. And men, men just do their normal thing and they don't do stuff like that to get attention like the women do.

4.2.7 Bongiwe

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Khayelitsha	34	Black	Post-school qualification	Self-employed	Single	2

Born and raised in Khayelitsha, Bongiwe is a single mother of a six year-old girl and 15 year-old son though both live with her parents. She lives on her own. Bongiwe had initially intended on a career in fashion design however changed course to complete a diploma in Public Relations followed by several years of working in the media industry as a content producer. Tired of "working for someone else, making money for someone else", she started a small communications company. Her entrepreneurial efforts to establish her relatively nascent business occupies a great deal of her time and attention.

- ***ICT access and usage***

Apart from her attachment to ICT for personal communication, the nature of Bongiwe's business has her spending the majority of her time working with technology in some capacity.

> I use [ICT] for business mostly and, of course, for life, it's just communication with friends and everything. That is the cell phone. But mostly, all my stuff, my technological stuff is for business because in my business − as I said, it's a communication company − I do brand promotion, social media management. Ja, I also do virtual assistant. Like, online assistant [for administrative services]

In describing the role of the various technological resources used in her profession she states "I don't have to be physically in [my clients'] space" to complete work. Bongiwe depends on both her mobile phone and laptop – purchased while employed in the media industry – for these activities stating "the laptop, the phone, everything, anyway. It goes hand in hand". This is also mentioned in reference to the large amount of research she engages in for work as well as to satisfy personal curiosity. She occasionally makes use of public ICT facilities in instances where a device is unavailable (for example when in transit without her laptop or in her current situation where her computer is broken).

While a great deal of Bongiwe's work involves social media platforms, she is less than keen to use these in her personal capacity despite having Facebook, Instagram and Twitter accounts. She describes having initially been more active and gradually losing interest particularly in posting or sharing content as she began to see less value in this. At the same time, she recognised the potential for these channels to serve far more uses and even be profitable: "I realised you know what, you can use this as a business platform. People can advertise their businesses you know, you can market." In wake of this, she geared her social media activity towards professional purposes:

> I noticed you know what, no, this is not doing much, it's not bringing anything for me to keep on posting on my pages. Rather I do it in business platform, so I know I post for my clients you know, so that's where I spend most of my time and the content that I prepare is for clients instead of me posting something or preparing a content that is not gonna bring anything in return.

What minimal activity occurs on her personal account is also somewhat in line with her professional goals in that she tends to follow entrepreneurial pages for guidance and inspiration. She explained: "I'm looking for business opportunities to see like what other people need and all of that, what I can offer, but with that I'm using my personal platform then divert those people to my business." Bongiwe does, however, enjoy using one social media platform, namely Twitter, which she finds "more engaging" particularly in conveying gossip. This is one of the few activities she engages in when "trying to relax" with her phone – described as her "BFF" (i.e. 'best friend forever') – along with chatting on WhatsApp, browsing content on Pinterest and playing the odd mobile game. Bongiwe thus reports making relatively little use of ICT as a leisure or recreational tool. Though occasionally listening to the radio and reading a newspaper, her primary source of information is the Internet. Apart from informing herself, she also uses ICT for her children's learning. While her teenage son is relatively self-sufficient in his digital activity, Bongiwe recently passed down her old mobile phone to her young six year-old daughter, equipped with downloaded educational games: "[T]here is an app for spelling, one for counting, the other one for animals so she just − I also have a copy of everything that she like has on her phone." She also makes use of ICT to simplify her life via online banking and applications such as a mobile notepad for organisational purposes in her busy schedule. The prospect of being without her device and unable to partake in these activities is at this stage a dreary one, evident in her statement: "I don't see myself without a phone at all. My life would be miserable."

- ***Influencing factors***

Affordability

Bongiwe has not struggled with the issue of costs in owning her digital devices. She considers this relatively inconsequential amongst her community members – at least with respect to mobile phones, which she believes to be all but ubiquitous in the area and increasingly smartphones as well "especially now that this smartphones are very affordable". Her perspective towards Internet expenses, however, differs considerably and was unequivocally identified as her greatest challenge in capitalising on the benefits of ICT. During the first interview, she said: "[I]t's like internet, like we don't have the Wi-Fi connection at home. So, you have to use data all the time. So, you run out of it. Then it becomes a problem. So, that is the current barrier." At the time, Bongiwe had been depending solely on prepaid data for all her Internet activity which she found very expensive. She also used what she considers to be a below par service provider and experienced difficulty with the signal in her area as her preferred network was too expensive. Bongiwe reported making sacrifices "all the time" to ensure constant connectivity, noting "I will rather not have food than not have data." During the period between interviews, a considerable change had occurred in that Bongiwe had invested in Wi-Fi for her home. This transition has reduced her (previously substantial) Internet expense, reduced her use of public ICT facilities and – particularly pertinently – enabled her to complete an online digital marketing course which required substantial Internet access.

Concerns and negative perceptions

Bongiwe is notably cautious in her approach to using certain technology, though believing that a level of online safety can be maintained depending on individual actions: "[I]f you go signing up on everything and you put in your personal details, you put your picture, just putting yourself out there, you need to be cautious and try to be safe as − you know? But if you just do it then it's not." She describes herself as "extra careful" in making efforts to ensure her safety. In reference to social media for example she states: "I don't even upload pictures of my family on any platform, even on my personal platform on my personal Facebook. There are no pictures of myself or my family. There's only one picture of myself then the rest is cartoons […]." This practice of avoiding photographs and even profile pictures is also applied to the instant messaging application, WhatsApp. Additionally, Bongiwe is careful in expressing opinions online in that she is aware of her online image reflecting the offline.

> I don't really [post online]. I'm a bit hesitant […] Because I'm the kind of person who like always make sure whatever you say, it's going to reflect right on you […] I have to hold an image so I can't just say […] use my emotions to paste anything on those platforms – on the public platforms.

Her precautions appear to be sufficient in providing her with a sense of security on these platforms, so much so that an incident such as the recent Facebook data breach has not concerned her. She also feels secure with online transactions like Internet banking and – though she has never engaged in it – online shopping. Her lack of participation in the latter is not due to safety concerns, but because of her preference for the traditional practice of physically visiting stores and personally viewing the merchandise.

Bongiwe is aware of the potential for her data to be lost or compromised on other platforms aside from the social channels. For example, she relays her incredulous reaction to community members storing their information on public computers which she considers reckless. In addition, being conscious that she is "vulnerable to crime" when carrying a phone in her neighbourhood has driven her to take extra caution to safely store her data:

> I always back up everything that I have in my phone. So, when it comes to information that I know I need, I always back it up. Pictures that are on my phone are backed up. So I know any time where like I get to lose my phone, I still have my information.

She has, however, had her privacy compromised despite all her safety measures in that her personal information was made public online by Home Affairs without her permission: "[I]f I Google myself, everything – my ID, address, everything – is displayed." Despite insisting that this be removed, it remains online. She noted: "[I]t still pisses me off". This served to make her even more wary of threats to online privacy however her main concern regarding technology is the safety of youth "when an underage person gets in touch with technology and then they misuse it." As a mother of a teenage son she finds this particularly distressing.

> [I'm] very much [concerned] because it's easy for them to lie about their age and download content that is inappropriate and all of that. So, in that manner you have to keep on checking what stuff is on their phone, you know? So, which is kind of like intruding in their privacy but okay, without checking then trouble hey.

One final negative aspect of the Internet Bongiwe perceives is the inaccurate information conveyed which she notes is often "very influential stuff that people come up with" and that "if you don't know how to differentiate then you can get into a trap". While this does not seem to affect her own digital activity, given that she described herself as a critical thinker who "[does not] entertain such stuff", she believes this to be problematic amongst members of her community:

> I doubt if they are aware of it because people just believe everything and you're like, isn't this obvious that it's fake news? But people, you know especially people from our community, they don't really like doing research. So, whatever comes out they like receive it and believe it […] So, people still need to be taught of such.

Her opinion is, therefore, that more knowledge should be conveyed to her community members on how to safely and thoughtfully use ICT, particularly given her belief that they have no choice but to engage with technology at this point:

> [W]e currently are living in a world of technology. So, I think it's a 'must use' stuff. Ja, it's not whether you have a choice or not on the matter. It's something that it's a must. In order to get on with the technology, or else, I don't know, you should go to the bundus[11].

Ability, confidence and learning

At this stage, Bongiwe considers herself to be tech-savvy and comfortable with technology, including that unfamiliar to her reporting "I like challenge". Her learning began early on with a basic computer course shortly after completing high school. It was, however, predominantly her years spent working with technology and upskilling herself independently which instilled her current level of confidence. During the period between interviews, Bongiwe completed training pertaining to the use of technology specifically in her profession, i.e. digital marketing. Her enrolment was for the purpose of gaining knowledge on how to capitalise on more recent ICT tools to grow her business and become more familiar with "the current stuff on digital marketing". The course was beneficial in that she expanded her services, implementing what was presented to her during training. While appreciating the instruction and guidance, she is comfortable with exploring and discovering new knowledge on her own: "[F]or someone to just demonstrate makes things easier but being thrown in the deep end, it works for me as well."

Bongiwe's knowledge is also evident in her understanding not only when to implement digital tools but also when to refrain from doing so. For example, though believing a website is pertinent to a business, she understands that certain steps should be put in place before this development: "I want to first boost my pages, make sure that you know, before I can drive people to the website I first want to focus on the social media platform […]"

Social support system

Though Bongiwe's parents are limited in their digital activity, making little or no use of the Internet, she credits with them with creating an environment which was conducive to the learning of her and

[11] A distant or wilderness region

her two siblings, all of whom are now entrepreneurs working fully or predominantly in IT fields. Additionally, these older siblings seem to have impacted her career path and interest in ICT. Though perhaps unintentionally, she initially entered the same industry as her brother, having never heard of such a profession before. Her sister appears to have been even more influential as it was after Bongiwe assisted her to launch her IT company that she realised the extent of her own passion for technology and changed course from her focus on fashion.

> […] when I worked with her, that's where I realised you know what, my passion lies more on this than anything else because I also studied fashion designing which I'm not using it. And at the time when I started, I was like okay I want to be a fashion designer you know, a childhood dream and now I'm like no, this is not what I'm interested in […] Technology is the side that I'm − yes. And most of my experience is more based on the technology side.

Overall, Bongiwe typically appears to adopt the role of influencer on the activity of others, stating "I kind of like to influence people to [use ICT]". She is the primary source of support for her parents if need be and introduced her (still uninterested) mother to social media. Bongiwe's influence is likely greatest in the significant impact she bears on the digital competence of her children. Her teenage son still looks to her for support on occasion. Her comment on this was: "At least he doesn't have to go outside in order to get assisted". Her impact is even more evident in the digital capability of her young daughter: "[Y]ou just give her a phone, she'll show you stuff that you like 'How did you find out about this? How do you know how to do this?'" Her children's competence is important to her and she occasionally subtly puts it to the test: "Sometimes I just act as if I don't know something and ask them to, you know? So, just to see how much advanced they are." She also prides herself on having some impact on local youth when possible, and promoting IT as a career path. While Bongiwe's friendship circle does not typically engage in ICT beyond social and communicative platforms on a mobile phone, she does have somewhat of a network of likeminded individuals and entrepreneurs connected to a local business hub.

Time

Bongiwe places great emphasis on the significant constraint of lack of time for women to engage more substantially with ICT. She also indicates having limited time for greater recreational digital engagement. While this may be true to an extent, a lack of time does not appear to have significant impact on her digital activity. Given that her children live with her parents and that much of her time is spent alone focused on work which is largely digital in nature, time does not serve as a notable deterring factor to ICT interaction.

- ***Bongiwe's mental model on gender and ICT***

Bongiwe has and continues to observe a strong power imbalance and inequality between men and women which she believes to be particularly prevalent within the black community. While blaming men's superiority complex, she views women as considerably at fault as their thinking and behaviour are in line with what she perceives as antiquated gender norms. She believes this inequality to be firmly fixed into the fabric of society:

> [Change] will never happen. We can say we're 50/50 because that's the term that like we use in the Township, like okay, it's 50/50. But it will never be. We will never be equal. Men will always be you know, feeling they have the power of doing everything. And we women − especially with the economy − women still needs to be supported, **wants** to be supported by men […] So, the balance will never be there, especially in the black community […] We're supposed to be [equal] but we don't want to be. In reality, we don't want to be because we always want men to support us. Even if you know I can stand on my own but you will always, you know, rely on men. Even like, you get like judged if you're single, you don't have a man next to you. Like, you know, there's something wrong − how are you supporting yourself? How are you maintaining yourself? Though you can but there's always that 'No, you need [a man]'[…] Some women will even say 'No, I need a man to ground me.' What's that? So, we will never be equal.

Bongiwe believes the gender imbalance amongst her generation has been carried down and learnt from her parents: "the way that we grew up, our parents has influenced us, you know. So, the way that things were done to them is still happening even now though we think things have changed […]" She is deeply frustrated by the continuously persistent beliefs that women are lacking, of less value or even somehow defective if without a male partner.

> […] we always have the belief that a man has to provide for a woman, a woman can never be independent […] And there's a saying like that most people believe in, you can have everything as a woman, but if you don't have a man next to you then you're still imbalanced, you're still lacking in something.

Bongiwe believes these societal beliefs (particularly prevalent in her area and culture) and the resulting gender norms intersect with ICT in ways which have left women at a disadvantage. Different roles assigned to men and women have dictated that the responsibility of household work lies with females. Consequently, the significant imbalance in free time between men and women has left men with considerably greater opportunity to engage with technology, thereby making them the generally more skilled and comfortable users.

> I'd say men are [more comfortable with ICT] because they have all the time in the world. So, they can, you know, play while you as a woman are busy with house chores and everything. So, the balance will never be there. You know, especially being an African woman, when you get home you know okay, I have to do certain chores. And men, when they get home they're like, I know I'm going to relax. So as soon as they get home, they're there to relax or watch TV, play with their phones and all of that. With you as a woman, you know okay, I have to do this and this and that and that. Then when everyone else goes to sleep then you can, you know, start playing with your phone and everything…

These norms are not confined to adult women, but younger girls as well. Not being expected to do household duties, boys reportedly face less opposition to relaxing with technology than do girls who are questioned as to when they'll be completing their tasks: "[G]irls needs to do chores […] So, now you're busy on your phone, when are you going to do A, B, C? You know? For boys, it's okay because what is it that he's going to do? Nothing. He's not going to do anything, so he can just play with his phone." Ultimately, Bongiwe believes these differences contribute to what she observes as an overall lack of digital ability and limited use of ICT by women.

> [S]ome [women], you'll find that they don't know how to access most stuff on their phone. They don't know that you can have a document on your phone, you know? And send the email via your phone. It's something that they still need to be taught. They need more of the training […] like one time I was chatting to this lady so she's like 'okay, I'll give you one document. I've got this document that I need to send you.' 'No, okay, you can send it to me.' She's like 'Oh, I first need to go to Mitchells Plain.' I'm like, 'why?' 'No, there's an internet café there, so I store my things on their computer.' I'm like 'that's not how you're supposed to work.'

However, this is not always immediately obvious as many local women own sophisticated mobile phones. According to Bongiwe, these are in fact only for appearance or status, hiding their lack of knowledge of how to use the device for more than its rudimentary functions (i.e. phone calls and instant messaging).

> […] in most cases, you would find out that most ladies or I would say women, they just use, they buy like expensive phones with everything, the apps and all of that. But they don't know how to use those apps. They just like use WhatsApp and answer the call. Just the basic stuff. They don't know how to search. They don't even have emails. So, the most important stuff they don't use on the phone. It's just you know, the fancy thing of carrying that expensive phone […]

Bongiwe also believes that there has traditionally been less of a focus on educating women and girls on the pertinence of technology and its growing role in society:

> […] as women, we are not taught about the importance of technology. So, most women still perceive technology as you know, something that's not very much important. Though they see that everything now is being done through technology but they still don't value it.

She observes an on-going problematic perception within the community that IT careers are a male preserve, which she believes to be particularly concerning and damaging to young women. She provides a fitting example to depict her observation:

> There's a student who couldn't get into college this year so the only course that was available was an IT course. So, she's like, 'No I would rather go next year than go and do IT. That's a man's field.' So, I had to convince her that no, you know, it's not a man's field and more opportunities will be – it will be opening more doors for you because there's less women in that field. And at the end she went.

Ultimately, Bongiwe is hopeful because of the interest shown by women, she has observed, to be more digitally active. However, she believes more encouragement is necessary as well as a shift in the mental association of technology with men. Additionally, more opportunities for women's access would be useful as she believes herself to be an exception in owning a laptop and having convenient access to Wi-Fi – resources she observes most local women in business lack and struggle to be without.

4.2.8 Jasmine

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Khayelitsha	59	Black	None	Employed	Single	3

Initially from an informal settlement in a particularly poverty-stricken area of the Eastern Cape, Jasmine moved to Johannesburg in search of work before following her sister to Cape Town, where she had lived in Khayelitsha for the past thirty years. Having grown up in a very rural area where her father was employed as a farmworker, she had no schooling and she remains completely illiterate. Jasmine raised her three children on her own as a single mother employed as a domestic worker. Still in this occupation, she continues to house and financially support her two unemployed children and four grandchildren. When her sister died in 2017, Jasmine also took in her young niece and nephew. She receives foster care grants for them from the South African Social Security Agency (SASSA).

Jasmine has a fixed routine with her days beginning at 03:00 so she can travel on public transport to the household where she is employed. Once she has returned to Khayelitsha, she spends the remainder of the time resting, cooking and completing the household chores which her children and grandchildren help with, to some extent. Jasmine's weekends are typically spent socialising with friends and attending meetings of the two organisations in which she is highly active – a community

civic organisation and a political party. She intends to retire shortly after turning sixty and return to her hometown in the Eastern Cape.

- ***ICT access and usage***

Though Jasmine has had a phone for what she describes as a "long time", its use is restricted to the very basic function of making and receiving phone calls: "Just must make you open, look for phone number, you[12] must phone. Somebody phones just you must receive." This communication is mainly with her children regarding any practical day-to-day concerns, as well as a few close friends who "like to talk this nonsense." Regarding the latter, she said: "My tjommie[13] everyday must phone for me, maybe it's − you know now I'm going home, you must phone. Before you sleep, you must phone 'What you doing?'" These friends and family members occasionally send her a Please Call Me to which she may call in response. Jasmine's mobile phone also serves an important purpose in maintaining contact with extended family members still living in the Eastern Cape: "[T]his family in Eastern Cape they must phone for me also […] this my brother and uncle [...] This you father, is big one. You must phone maybe he got you something, must phone. And my sister also must phone. And my daughter for sister, must phone."

She also notifies her employer via a phone call in the event of being unable to come to work and receives telephonic notifications of upcoming meetings from the political and community organisations in the same manner: "Maybe it's one now maybe tomorrow you going meetings, you phone me today [and say] tomorrow is 14:00 it's meeting." Apart from these phone calls, Jasmine's only other enjoyment of her mobile device is derived from taking and receiving photos and videos. This is essentially the full extent of Jasmine's engagement with modern ICT: "Use just the phone. Must call, must talk with tjommie. Internet and computer, no." Jasmine's sole exposure to a computer – though not personally touching the device herself – came when someone agreed to write her a CD-R (Compact Disc-Recordable) and Jasmine watched. While she does not have personal access to a computer, her mobile phone is Internet-enabled. She does enjoy certain older media, particularly the radio with which she starts off her mornings listening to early church services while getting ready for work. Television is a source of some entertainment as she occasionally watches local Xhosa soap operas. However, she prefers using the radio, particularly for receiving news.

[12] Note that Jasmine interchangeably uses the pronouns 'you' and 'I' both in reference to herself
[13] Slang term referring to a friend

> […] you listen news on radio. You watch you TV […] [but] 19:00 [when the news starts] I'm finish. You sleep. I don't so much watch TV. We watch like this, this one you fight for parliament for Zuma, you must watch like this. But not you worry with TV. Listening to the radio because you like your radio.

The extract describes a preference for television only when visual content is necessary, as in the example of viewing conflict and upheaval in parliament in the form of a physical fight. In general, news is still largely received via word-of-mouth from community members and at political group meetings. Jasmine's only other uses of ICT appear to be to receive a monthly notification message informing her that her salary has been paid into her bank account and relying on a fixed daily alarm on her phone: "You must set alarm for 03:00 […] is here phone […] It not stop this. Every day 03:00, it must make a noise." Despite her limited use, Jasmine is very attached to her mobile phone, mainly used to maintain communication with her friends. In discussing the prospect of being without her device she had this to say:

> No, I not feel alright because my tjommie I cannot listen […] Now [she's] worried because no phone now. And maybe tjommie look [for] me, phone [to say] you must going somewhere, you meeting. Phone you must going church [then I have] no phone, you see? Ja, you worry have I got phone.

In fact, she is so dependent on it that when recently robbed of her device, Jasmine waited only a few hours before making her way on public transport to purchase a new one. Soon afterwards, she received a second-hand device from her grandson along with a SIM card loaded with a small amount of credit. Since then, she has been carrying both of these phones with her, and she intends to do this until the credit on the second mobile has been depleted. She perceives the first device to hold all her "information" regarding her banking and is hesitant to be without this device in case she misses the notifications.

- ***Influencing factors***

Awareness

Though Jasmine claimed: "You know everything this phone, you know but not you play", this does not at all appear to be the case. Despite her awareness of popular applications such as WhatsApp and Facebook as well as the fact that these are installed on her phone, she acknowledges her awareness is limited to "just the name" and not the nature of its service. She has never heard of other commonly used terms like Google, and though the mention of Wi-Fi is familiar she is confused as to what it means. Ultimately, Jasmine appears unaware of the possibilities of ICT and the activities much of society currently undertakes through digital channels. As far as terms with which she is

familiar, such as WhatsApp as well as the icons on her phone, she appears to lack understanding of the nature of such platforms and tends to perceive and refer to everything outside of telephonic calls as “games” which other people “play”. However, she is aware of terminology which applies to and affects her personal ICT activity like ‘network’. Apart from knowing that people use computers for work and having discovered that it is used to write CD’s, she is unaware as to what exactly people do on these machines.

Interest

Though Jasmine has a clear attachment to owning a mobile phone, her interest in use does not extend much further beyond telephonic calls specifically to maintain contact with her few close friends. Her dependence on the device for such communication would likely soon increase when making the move back to her home province and leaving behind her children and friends. Jasmine has never had any inclination to open any unfamiliar applications or icons on her device and bluntly stated: “I don’t want to [do] anymore”. Her misperception of much of the available applications as being games, combined with her general lack of interest in games may partly explain her attitude to expanding her use.

The single instance in which Jasmine was exposed to a computer piqued her interest in the technology. This was partly due to learning that the device enables something in which she is personally interested (listening to music) and partly due to a general curiosity arising while watching it being used. Questioned on the prospect of learning how to use such a device, she responded: “[I would] like it [if i] know.” Jasmine has an interest in updating her mobile engagement in one particular area, namely adopting her recently acquired touchscreen device as her primary mobile phone. At the time of the initial interview, she determinedly declared her intention and commitment to learn to use the more modern device. Despite her lack of interest in participating in the technological progression of much of society, Jasmine seems to have a different attitude to touch screen phones, citing her reason for wanting one as a desire to be like everyone else: “They all touch, me also want to touch.” While her opposition to increasing her range of use and exploring the potential benefits of ICT remains steadfast, it seems she has some interest in expanding her existing activity on what outwardly appears to be a more sophisticated manner on a more advanced looking device. This is ostensibly to fit in with those surrounding her.

Ability

Jasmine has extremely limited digital ability, often emphasising this in discussion on basic ICT activity: “No, I can’t use anything. Use just the phone. Must call, must talk with tjommie. Internet and

computer, no […] I don't know nothing [...] I can't do nothing for WhatsApp and everything. This people who play phone, no. I can't play." Her limited knowledge and use of ICT is inextricably linked to her illiteracy. It not only restricts her range of use but affects the way in which she performs her current activity. She has memorised the necessary icons and steps involved in performing the few basic tasks she engages in. Unable to read the names of contacts, she has come to recognise the phone numbers of the handful of friends and family members with whom she is in frequent contact. She initiates a call by inserting the first few memorised digits. She then waits for the device to automatically display the corresponding saved number before selecting the dial option. In the relatively rare event of contacting anyone outside of this close circle, she requires assistance to locate the correct contact either on her mobile phone or a phonebook kept at home. In receiving calls, she typically answers and only then asks the caller to identify himself or herself: "I must ask. I say hello, what's your name. He tell me name." She has also learnt to recognise a Please Call Me sent from family and friends and respond with a phone call. However, she is unable to send one: "[Y]ou know this number. It must make it call you back. [Get a Please] Call Me, you see you number and you know you must press again must going back, must phone you back […] I can't make that somebody must call me back."

While reportedly able to take photos and videos on her device, Jasmine requires assistance both in sending these to friends as well as in opening the content when received from others. Her only other use of the device also reflects a lack of knowledge in that the daily alarm she relies on from Monday to Friday continues to wake her at 03:00 over weekends. This is because she is unable to edit this setting. Furthermore, she appears unaware that such an action is even possible. Jasmine also understands very little in terms of what the icons on her phone represent as well as fairly common terminology. For example, when questioned as to whether she knew what a smart phone was, her response was: "No, this one is MTN".

Jasmine's admission that her phone selection is based on which device visibly looks easiest to use also reflects her level of competence. It explains why she has thus far opted to purchase older technologies rather than consider what she perceives to be more advanced touchscreen devices. Despite this she is currently in possession of a touchscreen phone having been recently given one by her grandchild. Her lack of ability to operate this device has, however, thus far left it largely unused.

Social support system

Jasmine's family and friends are – for the most part – avid mobile phone users which was the primary motivation for her use. Interaction with computers, however, is limited amongst this circle, with only

Jasmine's eldest daughter (the only one not residing with the family) having such engagement at her place of work and her older grandchildren at school. While she observed mobile phones as widespread in the community, computers are not commonplace and largely reserved for use in school or office environments: "All over [people] use phones […] computer, only school and working in offices." Jasmine reported that most of the people she knows in her neighbourhood are unemployed, involved in manual labour or the informal sector. For example, it is common for them to be "selling things at the station" and some of her close friends "sweep the streets". This would therefore allude to low uptake of computers in her neighbourhood and amongst her social circle. The previously mentioned single instance in which she observed a computer in use was through the daughter of a local acquaintance living outside of the Khayelitsha area. It is thus partly due to the lack of ownership of computers amongst her close family and social circle that Jasmine has not had any interaction with computers despite the interest she expressed in doing so. She commented that due to this lack of access, she has "no chance" for further exposure.

Jasmine's children and grandchildren – one grandson in particular – help her to operate her mobile device when necessary, including making phone calls and sending and receiving content via MMS.

> You want to save [a contact], you must tell them to save in my phone. Now you wanting something I'm call this small one must see this name, the name that must phone – maybe Unathi and anyone that's my tjommie. That one, the small one, the small boy, you tell him this one – this name is Unathi.
>
> […] maybe you buy this one like this, now you must call it for Vuyo[14] and maybe Rose[15]. They must show me. 'Mammie, you must make like that, it's open, ne? You must make like that. You must receive. You must make like that. Your phone will know.'
>
> This miss call, you must look him. You must listen […] Must call Vuyo. He must look him.
>
> This one put the alarm – this big one, Vuyo.

It is noteworthy that Jasmine's touchscreen phone, which she intends using soon, is also a direct result of her family's action, being a gift from her grandson when he upgraded to a new device. Though she is pleased to have this facility, it is unlikely that she would have made the move herself in the foreseeable future, given Jasmine's tendency to purchase older models, which she had in fact done shortly before receiving this gift.

[14] Jasmine's grandson
[15] Jasmine's daughter

Environmental constraints

Jasmine experiences certain network problems in her area where she may at times be unable to make calls. She said: "MTN − you must try your phone […] And no network. No network. Maybe all day no network because it busy now for MTN." While an inconvenience at times, this has no substantial influence on her ICT behaviour.

A more pressing challenge is the significant risk of being robbed of her device both in her neighbourhood or while using public transport. Jasmine estimates she has been robbed of about ten or eleven mobile phones to date. After insisting during the initial interview that thieves "can't take [the phone] again", by the second discussion she had been robbed of her phone and money – this time at gunpoint by two men who physically assaulted her very near to her home. The fact that she waited only a few hours before purchasing a new one indicates that these incidents do not deter her from owning a device. However, it has at times affected her decisions as to the type of device purchased. She believes that thieves are less inclined to rob those owning cheaper looking phones, making this one means of possibly detracting them from targeting her. Despite the risk that owning a mobile phone presents, Jasmine noted that owning one makes her feel more safe and secure.

Affordability

Jasmine has not experienced a substantial challenge related to costs of her mobile device as most have been inexpensive feature phones bought on account at a retail store. The value of her credit vouchers – which range between R5.50 and R20 purchases from one of the "Somalian" shops in the township – depends on how much she is able to afford on a particular day: "Maybe you got you money. You must buy a R10 […] You got some money maybe for weekend, you must buy for R20. Now, you haven't got you money, you must buy that R5.50." Though her limited financial means determine the amount of credit purchased, cost has very little influence on Jasmine's ICT usage given that it is strictly limited to phone calls. Furthermore, these calls reportedly do not happen very frequently allowing her to maintain as little as R10 worth of credit for about two weeks.

> […] because don't phone so much. I only phone for girl and woman, for tjommie. I don't phone so much […] [Credit costs are] okay man. I not worry because if I must buy today, must buy R5 now. Phone just one girl, my tjommie. Must phone you back. Tomorrow maybe I not phone. Monday I not phone. The credit is still there inside the phone.

Given the lack of income amongst the rest of her household, she finds that they tend to use her credit, often without her permission.

> […] this children they steal my [credit]. […] sleep here, my bed, must tuck phone here inside pillowcase because [they] stealing my credit. I buy maybe it's R20, ne? And the MTN must give me the extra for ten, maybe it's R30, ne? Now this one Vuyo, [he's] stealing. [He] must take my phone. [He] must send [himself] credit for [his] phone. You know, [he] must phone [his] tjommie. Me sleep.

Despite her limited resources, this does not bother her, likely due to her own limited use of the phone and credit.

Time

Despite showing interest in learning more about the computer, Jasmine noted that she does not have the time it would require of her to make an effort to get to a machine and learn. Her job and the travelling it requires is strenuous and when she has some free time over weekends, she prefers to rest. She explained: "No chance because [I'm] working [during the] week, [travelling] up and down. Finish you work, weekends I can't make nothing, you sleep, rest."

Negative perceptions

Jasmine seemingly partially attributes her lack of know-how to her age. At the same time, she believes that she is too old to acquire new digital skills, specifically with respect to using the Internet or computers. In explaining this, she made frequent references to herself as being "big now". While not considering herself well-suited towards more advanced applications of technology, this has not in any way soured her perception of ICT itself. The only negative she perceives relates not to her but to her grandchildren. Jasmine disapproves of the adult content she has repeatedly caught them watching both on their mobile phones and particularly the television. While having great affinity for phones in general, Jasmine does not really approve of children owning these devices and declared: "I don't like the phone for small one."

- ***Jasmine's mental model on gender and ICT***

Having faced a great deal of adversity and economic hardship throughout her life, Jasmine's worldview and focus has been one centred on subsistence. This has partially underscored her caring little for issues of gender, reflected in the way in which she raised her children where typical gender norms and the stereotypical gendered division of labour do not apply. Whether male or female, her children and grandchildren are expected to contribute to the household in whatever manner possible, be it via monetary means or domestic chores. She explained: "[B]oy in my house or girl – Some boy not work, he must work in here house […] Everybody – it doesn't matter [boy or girl] – everybody must work." Having spent nearly her entire adult life single, a single mother and sole

breadwinner, and having an overwhelmingly female social circle and support network, Jasmine is a resilient and independent woman with very close female ties and generally little interaction – particularly of a close nature – with males, aside from her son and young grandsons. This is also reflected in her digital interaction as she noted: "I only phone for girl and women, for tjommie." The combination of these factors has likely contributed to the seeming indifference Jasmine demonstrates regarding issues of gender in her community and society at large.

Jasmine's highly limited understanding and awareness of the functions of (relatively widely known) ICT and the purposes for which others typically use computers and smartphones leaves her lacking any deeper insight into potential distinctions between men and women in the digital space, particularly in more sophisticated use of ICT. However, in her view, both her son and daughter who live with her are generally very limited in their use of ICT as none of them use computers, her son has not owned a mobile phone since losing his device and her daughter does not use the Internet in any capacity. She attributes her daughter's limited ICT engagement and ability as due to lack of education as she dropped out after completing primary school. Jasmine – who, as mentioned, associates computers with office jobs, which are perceived as respectable careers – would like if her daughter were employed in such a job and would therefore be in agreement with her increasing her interaction with technology. However, the woman (in her late thirties) has no interest in furthering her digital engagement whatsoever. Jasmine does not appear to associate this lack of interest with women in general but rather with limited education and exposure to ICT, as well as limited computer usage being the norm amongst both men and women in her area. These perceptions, along with her observations that mobile phones are ubiquitous amongst males and females and that her female friends are very frequent users of these devices, seem to leave her uncertain but generally leaning against the notion of gender playing a role in ICT usage in her community.

Instead, Jasmine perceives digital disparities in age – notably not between her generation and that of her children, but rather between all of them and the generation of her grandchildren. As opposed to her son and daughter, her older grandchildren are avid ICT users who make frequent use of their phones and the Internet and are able to use computers. Jasmine attributes this difference in digital competence between her children and her grandchildren as due to education and the difference in exposure to ICT they were afforded at school: her grandchildren are exposed to computers within the school setting while her children were not.

4.2.9 Rashieda

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Mitchells Plain	36	Coloured	Grade 12	Unemployed	Married	4

Rashieda is a 36 year-old woman from Mitchells Plain. Initially employed in a secretarial position, she gradually worked her way into a sales and marketing role for a small company where she worked for eight years. However, she recently resigned because of the condescending and discouraging attitude of her employer. Though she intends returning to the workplace soon, Rashieda is currently enjoying her time at home, caring for her husband and four children (aged between four and 15 years). Her seven-year-old son lives with her mother in a nearby town in what she describes as a norm in her culture (i.e. one child living with a grandparent).

- ***ICT access and usage***

Rashieda has developed a great affinity for technology because of her belief that "it brings you in touch with everything". She currently owns a personal laptop, mobile phone and tablet. Up until her recent resignation, use of ICT was not merely optional but a requirement for professional purposes. This included a great deal of communication with both domestic and international clients via email and video platforms, as well as considerable social media engagement to market her clients' businesses and to do administration: "We did marketing so I had to work with English – British people, Americans and you know, you name it, you know? So I had to communicate with them and the only way we could do it was via Skype or emails or, you know, these types of avenues."

Since retiring, Rashieda has for all intents and purposes abandoned the digital applications previously used daily in her professional capacity. In fact, she is now annoyed at being contacted via email, believing her much preferred WhatsApp to be entirely suitable for any form of communication. She thus relies on this platform daily in addition to traditional phone calls. Though her personal Facebook account technically remains active, Rashieda has also abandoned social media. Here as well, she has found the instant messaging platform to be a suitable replacement in that much of the content usually viewed on Facebook often makes its way to her via friends sharing or "broadcasting" on WhatsApp. She also commented: "obviously the videos go viral". This application is also increasingly relied upon for rallying community engagement in germane challenges and conflicts directly and indirectly affecting members. At the time of interview, for example, WhatsApp was being used as the

primary tool to inform and rally citizens to respond to escalating protests and violence between racial groups in the area, as well as taxi violence and shootings in a nearby district. At a broader level, WhatsApp was also being used to mobilise Rashieda's social circle and particularly members of the Muslim community to participate in an organised march in support of Muslims in Palestine. However, Rashieda also relies heavily on other channels to remain updated on these issues, stating "I do get all my news. I'm very passionate about Syria and Palestine and things like that for obvious reasons, but I keep up with times." This information is often acquired via offline traditional media, namely the evening television news broadcast and the radio. She finds "the Muslim radio station" particularly useful in that the content pertains specifically to issues she considers significant and relevant as a woman of Muslim faith. In discussing a recent attack on a South African Mosque she commented: "I listen to the Muslim radio station and I listened to it yesterday the whole day [for updates on the attack]. And obviously with the Palestine March yesterday." Additionally, she finds this station to be a source of support and useful information typically unavailable via more mainstream channels, specifically during notable periods such as the holy month of Ramadan: "[N]ow with Ramadan it's gonna be radio every day […] because obviously they know what you're going through. It's not like Good Hope [FM] is gonna know these Muslims are so hungry and what treats to get and where to buy the specials."

Rashieda also turns to online resources and dedicated news websites to keep informed on many issues. In fact, she described using her digital tools to satisfy her curiosity and research just about whatever comes to mind: "I Google everything. Yes, I do. I want to know a lot of things." She typically allows herself free rein to explore and wander from one website and topic to the next as things interest her, explaining: "I'll read up on it and then I'll − and then it actually takes you everywhere. So, this one subject will take you […] there's something else that maybe that intrigues you […]" Rashieda has also taken on the responsibility for sourcing the information required for her eldest two children's assignments online: "I have to go on to the [Internet] to Google for them. 'Mommy, get the information, I need the information for tomorrow' or the, you know, next week, and then I have to get the information." Undoubtedly one of Rashieda's favourite uses of ICT and her sole use of her laptop at the moment is its recreational function. She illegally downloads film material (movies, television series and music videos) on a daily basis, which constitutes her main pastime. She also downloads content for her children and transfers it to her tablet for their viewing. Consuming this downloaded material is her family's activity of choice when spending time together: "[W]e are a not a family that like to go out. So, what we would do, we would have movie days, series days. So, we don't get out of our pyjamas unless we're washing, then we will just put it back on. Weekends." Rashieda takes so much interest in some of this material that she takes it upon herself to find further

information about certain subject matter and often conducts searches related to her favourite writers and directors.

> So, it's just a lot of information that you can get. Wikipedia is good […] Especially with the series actually. Like Julie, Julie Peck, and like the creators, Shonda Rhimes. I always go to see what they've got, something – if they've got something new and then that's a series that might be interesting because they're quite nice.

Rashieda's use of ICT for recreation extends to photography on her mobile phone and playing games on her laptop, though the far majority of her abundance of downloaded games is for her children. Her downloading is also put to productive use in educating her children. She was, for example, creative in addressing her son's reading difficulties by downloading his favourite Japanese cartoons in their original language, thus forcing him to read the English subtitles.

> I use technology to help my son read […] Children are so absorbed by these cartoons […] So, what I did was, I started downloading these Japanese cartoons for the subtitles but my son doesn't know that I'm actually teaching him to read and he actually spells better than my daughter […] The cartoons are also nice because they learn so much, man. Because, my daughter was explaining something […] something about archaeology and then he said something and I said, 'Ebrahim, how do you know that?' And he said, 'Mommy, the cartoons.'

Finally, Rashieda employs ICT in ways to simplify her life in Internet banking and using her mobile phone to purchase electricity, credit and – prior to resigning – pay debts. Ultimately, despite her frequent use of ICT, Rashieda uses her devices in an intentional manner and has adopted an "out of sight, out of mind" approach to her phone.

- ***Influencing factors***

Ability, confidence and learning

Rashieda has a solid level of confidence in her ability to deal with various ICT devices and programmes, largely due to having to engage with these daily during her eight years of employment. Her confidence was reinforced during the course of a formal one month ICT training programme that she completed shortly before the time of interview. Her prior experience with the content of the curriculum led her to find the training to be relatively simple: "the course to me it was, I would say bit easy because of the type of job that I had and because I knew a lot." Despite this, she found it useful in that it built on existing knowledge and provided insight into more advanced elements.

> With Excel especially, I always did it the long way in terms of formulas and things like adding and subtracting and things like that. So now I know more in Excel. I think I feel more confident in Excel because now I can do whatever. We used to like have like a little spreadsheet [template] that somebody else did and then I always used to think to myself, how does it add without me? […] I didn't get it because I tried everything but it just didn't add up. And then when I came here it finally made sense, you know? So yes, they taught me a lot but a lot I knew also.

Some shortcomings in capability were, however, inadvertently revealed during the interview for example inability to perform relatively common, simple tasks (for example take a screenshot on her phone) and lack of proper understanding of capitalising on the data offerings of her network. Overall, however, Rashieda is comfortable and confident in her knowledge and ability and even more so since completing training. Despite this, she believes her current skills only qualify her for an administrative position, which is not one she is eager to take up. Therefore, she has ambitions to do more technical training and move into graphic design.

Rashieda's overall confidence with ICT is reflected in the manner in which she welcomes engagement with new and unfamiliar technologies and in her eagerness to learn. The following extract depicts an apt example of her taking initiative to upskill herself via YouTube tutorials.

> […] on weekends most of the time I had to work so I had to like send 3 000 emails every weekend […] it took a lot of my time. And then I thought to myself, listen, I need a quicker thing here […] And then I went on to YouTube and I typed in there 'how to send 10 000 emails quickly'. And then it gave me a little video where it explained everything and I watched this video and I thought to myself, listen, I'm gonna try this […] that's how I taught myself how to mail merge.

Rashieda's skillset was primarily gained via such a self-taught approach which has served her well thus far. Her decision to participate in formal training was therefore not motivated out of a belief that she lacked ability and needed instruction but rather that ability is worth little in the world of work without having some form of certification or "the papers" to show for it: "It helps a lot now that I have a certificate to show that I have a computer [training] because everybody is looking for computer courses, you know? Especially if you're a woman and you're looking for work." Despite being at ease with self-learning, Rashieda reported enjoying the training which allowed for a combination of formal guidance and individual practice: "Most of the time, I want to do things on my own [...] you obviously need that guidance also. So, I would say yes, you can teach but after a while I'm going to switch off because now I'm going to do my own thing."

Social support system

For the most part, Rashieda considers herself more adept with ICT than her family: “I think compared to my family, I think I’m the best […] My immediate and my extended family. I think I’m quite good.” Her mother and grandmother make no use of the Internet whatsoever, which largely drives Rahieda’s own significant use of phone calls as a means of keeping in touch with them. Her husband and friends’ use of ICT are also reportedly relatively limited. While she may occasionally hear of some new trends from the latter, Rashieda does not consider any of these individuals to be appropriate sources of assistance, which probably contributes to her self-learning approach: “there is basically no one that you can ask if you don't figure it out for yourself. So, you have to figure it out for yourself basically.”

The only member of Rashieda’s circle which she repeatedly emphasises as highly interested, knowledgeable and engaged in activities which even she does not understand is her son. She reports: “Ebrahim does things [with the laptop and mobile phone] that you won't even know what's happening.” This is a significant motivator in her own digital engagement in an attempt to maintain an appearance of being competent in front of her children: “I have to keep up with the times. If I don't, he's going to mock me forever.” Being perceived as knowledgeable in the digital space by her social circle in general is important to her: “I don't want to seem like I don't know. I don't want you to know that I don't know.” Her determination not to be embarrassed and mocked by her children prevents her from capitalising on certain knowledge they may have which she lacks.

> I don't want to ask them because then they're going to think I'm an idiot.
>
> I won't ask [my son] because I don't want to look silly. So, I’ll rather ask somebody else listen here. How do you do this? Just to show him up again […]
>
> […] you have to figure it out for yourself basically. Because I'm not gonna look dumb for Ebrahim because Ebrahim is a child. He will work on your nerves and he will brag the whole time. He’ll go on and on: ‘Ja Mommy, you couldn’t do that, hahaha.’ So, no, I have to figure it out by myself.

On the other hand, Rashieda makes a point of relaying what knowledge she may have to her children to ensure their competency grows. She explained: “[O]bviously they are computer literate because whatever I know they know”. While a positive influence on them in this sense, her seeming overreliance on ICT engagement as a pastime for her children may also have a negative impact, to the extent that she believes it may have become unhealthy.

Finally, perhaps an unlikely influence on Rashieda's current digital ability was her previous employer. By repeatedly undermining and belittling her, he unknowingly strengthened her conviction to advance herself and obtain digital certification of some sort. She now views her certificate not only as a pathway to new employment, but also as an irreversible achievement and source of pride.

> […] that was always a stumbling block because my boss would always tell me 'Listen, you don't have papers so you won't find a better job than this', and that's also one of the reasons why I left him. And when this opportunity came, I actually took it because now nobody can tell me I don't have computer [skills].

Concerns and negative perceptions

Rashieda has a host of concerns, reservations and perceptions which sour her view and in certain cases have an impact on her use of technology. She has some apprehension regarding her online privacy and safety, particularly pertaining to content involving her children: "[I]t's just the world we're living in, you can't just post too much pictures of your children." Her uploading pictures as a WhatsApp 'status' is only due to her taking comfort in the content expiring after 24 hours: "I just put it on WhatsApp because the status goes away in 24 hours so it's not there and I don't see that people can steal the pictures from your statuses because I tried that." While security concerns are not central to Rashieda's rejection of Facebook, she has always had reservations related to user safety. Her scepticism deepened since learning of the application's privacy breach: "Not a lot of people is going to trust Facebook anymore. I won't say I never trusted Facebook but I always had my [reservations]." Her distrust also extends to other activity such as online shopping following a bad experience: "It was a creepy situation where somebody has your details and they just can take your money just so […] That's scary. That's why I don't trust that anymore." She does, however, place more faith in electronic transactions when conducted via trusted sources such as her banking application with which she has never had a negative experience.

Much of Rashieda's negativity towards ICT lies not with the applications, but how they are used or as she perceives it, misused. Her main qualm with Facebook for example is that "it's a whole bragging thing – I want to be better than you and you want to be better than me". Of Instagram she notes "It's fake man […] That's how you want people to see you […] You want some people to see perfect you but it's not." She is also disheartened by what she observes to be an increasingly toxic direction of social media where people now appear emboldened to express hateful commentary which they would likely not offline.

> Sometimes they must just shut up. Sometimes I feel they must just shut up because back in the day you couldn't be so open and things like that and that's why a lot of things just slide nowadays because you can just say anything you want to a next person, never mind what that person feels you know? We have to think before we speak.

These perceptions were a major contributor to her inactivity on social media. Other platforms like instant messaging and the Internet browser are far more difficult for her to abandon despite her having some conflicting opinions of these as well. She is, for example, acutely aware of the wealth of misinformation spread via ICT, stating: "You have to take everything with a pinch of salt."

> I think that WhatsApp can be good, but it can also be bad. Because sometimes you get messages that's saying that they're fighting in Delft and then they're not fighting in Delft [...] So, you have to be very careful which information you believe on WhatsApp. But I think WhatsApp is the most − it's nice man because you can just broadcast any message. It's important.

For this reason, she gives careful consideration to sources of information and often verifies facts herself to check for "fake news".

> I always double check. When I was at work and I got maybe this broadcast on WhatsApp and then I double check on the internet, listen here what's happening with − you know? Then I just type in whatever information I got, then I just type it in and see no, fake news hey.

As a devout Muslim, many of Rashieda's negative opinions of the Internet and the media are the result of what she believes is an unfair portrayal of her religion and an attempt to demonise Muslims. She commented: "[P]eople are so misinformed about us." She believes that the media holds great power to either educate or misinform and that where Islam is concerned, it's largely achieving the latter:

> [T]he media − it's a terrible, it's a terrible − what do I call it? Media like televisions and movies and stuff, it can either make you very intelligent or it can you dumb you down. Right? So, the Internet has been doing that […] that's what the media thrives on because now you get these online media's and they stream so much things [...] And what they're doing is also wrong where they are saying that any Muslim guy is a terrorist if he does something. But if somebody of other − I don't know how to say that word but some other religion, creed or whatever does the same thing then it's insanity or something else.

Rashieda's frustration in what she believes to be heavy negative bias against her religion reveals itself often, including in her statement: "There's two sides to a story and unfortunately for us, there is only one story that gets broadcasted. So, we have to be very careful what we believe." Her belief that news, films and television series have inaccurately skewed society's perceptions has soured her own view of certain people and cultures. The content she personally absorbs seems only to reinforce

her beliefs: “It actually opens your mind up a lot man. These Americans are terrible people, I’m telling you.”

For the most part though, Rashieda separates media content from technology itself, viewing the latter in a predominantly positive light. She does, however, observe that society – including the Mitchells Plain community – has reached a point where people are “enslaved” by their phones. The resulting disruption in human interaction, particularly quality time within her own family unit concerns her: “[ICT is] very distracting. Distracting is that, this WhatsApp thing man. It’s just turning me off because it just takes everybody's attention away from quality time with each other.” When her daughter has insufficient data, the usual time spent in her bedroom texting friends is replaced with face-to-face chats with her mother. This partially underlies Rashieda’s statement: “I actually pray to God so that I can't have money on the day that [my daughter] need data.” Similarly, she also feels her husband is sometimes too occupied on his phone: “[S]ometimes my husband is always sitting on his phone, always on WhatsApp with his sisters or whatever. And I’m thinking to myself, you came from work now, you need to spend time. But you’re on this phone. And then I skel (*scold*) sometimes.”

Despite being considered a distraction and detracting from “quality time”, ICT is in fact also the activity of choice for her family’s time spent together and Rashieda is reliant on it to occupy her children’s time. While not generally concerned about their safety, she forbids them from downloading because of the abundance of pornographic content on these websites. She is also slightly concerned about her son’s exposure to this in future.

> I don’t feel for videos like that. So, I think that should be a bit limited, man. You don't share things like that. So, I just believe all kinds of pornography must be off social media. Because it can be my son that’s on Facebook. Maybe I opened him a Facebook account now he gets this and he looks at this and − and that’s how you get the sexual predators [...] That’s why I’m the one that’s downloading and not my children. I don't show them how to because […] I know it is there.

The recent training appears to have given her a new outlook on the relevance of technology today as well as its future impact, which is not positively perceived.

> It’s really, really scary. [They] put up a video there where they – it’s almost like technology is just going to take over, you know? And it's scary because why, I don't want people to lose their jobs. If a computer can do something better than a person, you know.

> I wasn't aware of that because in my mind I think I just wanted to block that out […] Gosh, to think now in the next 50 years or so – say 50 years yes – that your child won't get a job. What will he live off? You know, you'll be dead, you will be ash already and here your child is struggling […]

Overall, Rashieda's experience with certain aspects of technology have resulted in her being a relatively cautious user, refraining from many popular platforms and being critical of what is presented to her. It has also to a large extent angered, frustrated and worried her, as well as soured her views on certain groups of people. None of this has, however, deterred her from using the handful of communicative and recreational digital channels she enjoys and even more notably, pursuing a technical career in future.

Environmental constraints

Rashieda's reportedly dangerous immediate environment affects her digital behaviour. The high risk she perceives of her phone being stolen or attracting attention and posing a threat to her well-being has resulted in her resorting to leaving her devices at home whenever possible. This is exacerbated by the fact that she mainly travels on public transport which includes walking through what she describes as highly dangerous areas: "I'm so used to traveling without a phone […] how can you take out such a big phone to your ear? No! You can't trust − not in Mitchells Plain, oh no. So yes, I'm so used to traveling without. So, I'll tell people I'm going out, when I come back I'm going to reply or something." Though she primarily refrains from carrying her devices outside of her home, taking it with her is often unavoidable, particularly in her previous job which required traveling with her laptop. Rashieda's depiction of these instances also reveals the emotional and mental toil of owning ICT devices in her neighbourhood.

> You're not safe. I used to come home with my laptop because sometimes I had to work weekends or at night. I'm telling you my nerves were shattered most of the time because I'm thinking oh gosh, I have to walk over this field […] I was so scared because I don't know who's around the corner and I don't trust this area.

She described being "terribly nervous" during these periods even though the laptop was insured. She also uses her mother as corroboration for anxiety and fear being common in the community: "My mommy – oh, that auntie, she doesn't even pick up her phone when she's in the road and she's got this R99 phones like I'm telling you. No, she won't pick it up because she's just so − she's got this fear, man." This safety issue currently has Rashieda in quite a predicament where her son is concerned as he travels lengthy distances to and from school via public transport and walking through unsafe areas. She is therefore considering allowing him a phone to maintain contact during these journeys

but − aside from believing him to be too young − is concerned that owning the device will make him a target and potentially put him at greater risk.

> Last night I actually, I was very worried. And I thought to myself, must my son have a phone? But then again, I don't want him to have a phone because […] he has to walk down to the main, either to the main road to go to Cape Town, right, to get a taxi or a bus home. And there's that bridge […] There's a lot of cars that always park there… there's a whole lot of bergies (*vagrants*). So, I'm thinking to myself last night because he only came home at about past seven, but what he did was he missed his stop [...] I thought to myself, oh my god, I think this child needs a phone, but then again he's still too young in my eyes. So, what do I do? It's a catch 22 situation there. But I'm still thinking about it […] Because if he has it, he's in danger of somebody robbing him; if he doesn't have it, I can't get hold of him in situations like this.

The prospect of providing him with an inexpensive mobile phone with the logic that having this stolen would be financially insignificant is of no comfort to Rashieda. It appears that a common local phenomenon is for those with such inferior devices to be at greater risk of physical assault and harm by criminals who are dissatisfied with their pickings.

> […] then they hurt him because he's got a strange phone?! They did that with my mother once, so I think that's why she's so − or either it was her or one of her friends. Where she actually took out this block phone and they smacked her with it and they said 'antie, gaan koop jou 'n regte phone'. Bah, klap hulle die vrou. (*'Go buy yourself a proper phone, Auntie.' Wap, they smacked the woman.*]

Rashieda herself has been robbed of her device, though fortunately not assaulted in the process. She had this to say about the incident: "[T]hat was heart sore but rather lose your phone than your life."

Affordability

The costs of using ICT did not have a substantial restraining effect on Rashieda whilst she was employed and she was in a position to purchase devices, credit and data. The daily access to Wi-Fi at her place of work also reduced her own expenditure. Now unemployed, Rashieda reports a definite change in the extent to which she is impacted by costs, feeling it be increasingly burdensome: "Yes, definitely, definitely, especially with data. I would say it's a massive change […]"

Her spending habits have had to be adapted, firstly by ending her monthly data contract in favour of prepaid credit. Costs also have certain notable influences in her digital activities. Given the data-intensive nature of her main form of recreation (i.e. watching video content), she feels compelled to illegally download material as she believes this to be more affordable than streaming or acquiring content via legitimate channels. Even this downloading is expensive though, which has her resorting to waking up in the early hours of the morning as her network allows for a certain amount of free

data during that period. She explains: “I'm not working at the moment so I feel that daytime data is so expensive. So, I have to wait for night-time data and you're limited so there's only so much you can do.” Rashieda is also restricted by costs in the games she allows her children. Her son is typically denied his preferred games in that they require Internet connectivity and incur greater expense. She, therefore, restricts downloading to free, offline games, noting: “They say free but it's taking all your data.” She would therefore appreciate lower data costs, not only for herself but her children as well.

Despite this, Rashieda somewhat welcomes the barrier of ICT expense as she believes too much money is unnecessarily wasted on digital engagement and that a tighter budget forces more conscious and reflective thought:

> […] now I can actually limit myself. I know when to limit myself and I – it makes you a bit wiser, where you used to just spend, spend, spend for data. You didn't care because you were working. Now you actually see that it's actually a waste of time to actually spend all those money.

Lack of time

Rashieda previously struggled to reconcile her roles as an employee, wife and mother and found juggling her duties to be challenging.

> I just need this time just to be at home, look after my kids for a while and then go. Because I never had that when I was working, you know? It was always just work, work, work, work. It used to be up until 00:00 or 01:00 at night that I had to work and I never got off to go to school with them or parent meetings or things like that. Now, I’m just taking that time to be a mother.

Having resigned from the job which she reports “broke [her] down so emotionally” she describes her life as “basically very easy now” and “just mellow”. However, the previous time challenge did not affect the frequency of her ICT interaction given that her work duties revolved heavily around this. While it did allow her less time for ICT as a recreational activity, this was still a popular weekend pastime. Furthermore, rather than limited time affecting her ICT use, Rashieda found ways to use ICT to free up time, for example in the previously mentioned instance of teaching herself how to mail-merge: “So, then [my boss said], ‘[Rashieda] send this email out to everybody’ and I’m like haha, you don't know, you pay me, you’re thinking it's two days or three days work, but it’s only half an hour’s work. So, then I mail merged, so now I have enough time for my family.”

A lack of available time while working did prevent her from developing her skills and attaining her much desired certification. However, she notes that gathering time for full-day, daily training is difficult even while unemployed given her childcare duties as a stay-home mom to a toddler.

Fortunately, she has the support of her extended family. Her mother was able to take in her young granddaughter during the week and return her to her daughter at weekends. Without this arrangement, Rashieda would have found the intensive training very difficult to complete.

- ***Rashieda's mental model on gender and ICT***

Rashieda is frustrated with what she believes to be an inaccurate societal perception of Muslim women as being subservient. She described an altercation with her previous employer as an example of this stereotype:

> [He] also said like something 'You must be like a slave to your husband, hey.' And I'm like no. No, no, no, we're not slaves to our husbands, our husbands are slaves to us. You know, we can earn millions but our husband, he can't even touch our money. He must still provide for us everything because we bear his children, he must provide everything. And if we don't want to do his washing he has to do it himself. Do you understand? People have this perception that Muslim women, they are like subservient and they're like slaves and like Anastasia of Christian Grey. No, no, no.

The extract reveals Rashieda's own interpretation of the gender norms of her religion as Muslim women in fact being empowered. She also considers this to be the case with women as a collective regardless of religious affiliation and the related gender norms.

> My perspective of women in general, I think they are the powerhouses. A woman is the backbone of her family, right? Yes, she's the carer, she sympathises and things like that but when things need to be done, it's the woman. Whether you are Muslim, Christian or whatever, okay. Women are seen as the weaker but they're actually the strongest sex.

Rashieda has somewhat mixed personal experiences of the subject of gender in relation to technology. Within her own familial and social circle, she considers the majority of both sexes to be relatively limited in their digital skills and interaction. Of her previous male employer she noted: "I think I was more intelligent than my boss because he used to ask me what emails to send and if that is right and things like that." Her husband also typically requests her assistance with the computer when struggling: "He'd tell me, 'Rashieda, daar is iets verkeerd, gaan kyk gou. (*Rashieda, there is something wrong, quickly go and look*')… That one is domkop[16]." As noted earlier, Rashieda's son is an exception and according to her "like a little genius" with ICT: "[H]e does something to the laptop then I can't move anything at all. Then I shout at him, 'Ebrahim, come fix this, what did you do?' [He replies] 'Mommy, just press here.'" In describing his interest in acquiring digital expertise for the purpose of showing up his family, Rashieda comments: "I just take that as a boy thing." This is

[16] Stupid

partially based on the notable difference she observes in the digital ability, attitude and interest of her son and daughter: "[S]he's really not interested in − she likes computer, she will work on it, she will do whatever but my son, he will try to figure out stuff and then he will try to prank you with it. Maybe it's a joke, maybe he likes it, maybe he is more interested in IT."

Rashieda reports a general perception in her community of technology being a male domain which she partially relates to people still witnessing "all the guys go into IT". Though she considers women equally competent to enter technical careers, she herself also appears to have a certain bias towards these occupations, somewhat unintentionally revealed in her statement: "I think females, they don't want the role of IT because an IT is always dirty, man." When challenged on this statement she attempts to clarify by claiming that it is not her view; females in general perceive IT as an occupation that is in conflict with their traditionally held notions of femininity:

> Not dirty but they always have a jeans with a sweater because they must be comfortable. But ladies nowadays, they want to be in that executive positions with the suits and the pantyhose [...] So, that's why they would think that IT is more − it's a dirtier role because you're hands on and you can't look like professional so people can see that you're professional.

Rashieda's persistence on modern women being empowered and equalling men in every sense also seemingly has its limits: "Females can do anything. Besides construction and plumbing." She explains that given a general perception in the community of these being masculine occupations, females working in these roles are often ostracised: "[T]here is construction workers that's also females, because I've seen that. But I'm telling you, if somebody in Mitchells Plain is going to see you working in a construction company gaan hulle sê jy is lesbian (*'they're going to say you're a lesbian'*). No, she's too butch or something." She believes that these perceptions of certain roles as masculine are generally held by people in relation to the IT field. In her opinion, the advancement of women and greater representation of females in IT requires more attention to changing perceptions and reassuring young girls: "It's only that we need to tell girls. We need to tell them 'listen here, this − you can do this. It's not only a boy thing.' […] We need to speak to them a lot."

4.2.10 Annie

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Saldanha Bay	19	Coloured	Grade 12	Unemployed	Single	0

Annie is a nineteen year-old, single woman who – along with her two older brothers – continues to reside with her mother in Saldanha Bay. Since failing to be accepted into a tertiary institution after matriculating, Annie has spent the year unemployed with the aim of reapplying to colleges and universities in Cape Town in the hopes of pursuing a teaching qualification. Fully supported by a financially secure mother, she has made no attempt to search for (full or part-time) jobs and is comfortable spending her days at home. She has a substantial share of the household duties while her mother and brothers work, but has a considerable amount of free time daily.

- ***ICT access and usage***

Having received her first mobile phone at the early age of nine or ten years old, Annie has become thoroughly accustomed to and dependent on such technology, perceiving the thought of being without it as "horrible". She explains: "If I think I lost my phone, I'm dead. It's not nice. That whole shock." This fixation is not a recent one and dates back to her school days: "I remember on school, when my mommy takes my phone away, it's bad. You're not in contact with no one. It's like you're so stranded […] It's really not nice." These feelings of isolation occurred despite Annie having daily face-to-face interaction with her friends at school. She claims that without the electronic communication: "It's not like they're there." Now, removed from the school environment, the digital interaction provided by her phone is even more important particularly given Annie's substantial amount of daily time alone. The majority of this electronic communication occurs via WhatsApp which she uses for both one-on-one and group chats with family, friends and church (youth and Sunday school) members. Annie not only spends a considerable amount of her day engaged in this but also continues very late into nights: "[T]hat nice chats, like they won't end and it goes on and on. That talk past three [in the morning]". She also enjoys video communication platforms such as Skype and finds them particularly useful in maintaining contact with distant family members.

Apart from social communication, the remainder of Annie's ICT usage centres on entertainment and leisure. This includes mobile games and a great affinity for audio-visual content. YouTube is a preferred platform for listening to music (along with that shared with her by friends) and a substantial amount of her day is spent streaming content via designated channels (Netflix and Showmax) on the household smart television. In addition, YouTube serves as a primary source of information on a range of topics including health and fitness, cooking and more general areas of interest.

> I was looking on YouTube for that, what do you call it? That Zumba? I was going to start Zumba at home and I just got lazy. And also that health, for your hair. That health tips, I was doing that as well. And I got a few recipes there but none of it worked.

> […] someone was mentioning, 'Oh no I don't eat Viennas'. But we were eating hotdogs, so I thought – I asked her now, why not? And she said 'No, do you know how they are made?' So, I went to go search it. I did it on YouTube and watched a clip. It's really disgusting. I also don't eat Viennas anymore.

The latter extract illustrates the process of Annie's interest in a subject being piqued, her inclination to turn to YouTube as a search engine for finding the related information and her changed behavioural patterns as a result of the newly discovered knowledge. Despite her assertiveness about retrieving information, Annie receives a great deal of information passively via social media, specifically Facebook on which she has been active since a primary school learner. According to her, this was common practice amongst her classmates though it was not necessarily used as a social tool at this young stage: "I was in primary school still when I started using Facebook. So, I had a fake age and everything on Facebook still. I remember I didn't really have − Like, I knew my friends' Facebook but I only had family on Facebook that time."

Annie appears to follow very few pages or publications on the social media platform that she uses to receive information and she was unable to recall any specifically. The content which she absorbs is therefore largely dependent on what is shared by her Facebook contacts. Based on her level of interest in whatever she happens upon in this way, she may choose to do further research on the topic: "[S]ometimes it's that, that on Facebook where people is posting clips and so. And then, if it's not enough and it's like juicy, then I'll go search it on Google." She also uses Facebook for researching more serious material like information on potential tertiary educational courses and jobs. In fact, all searches related to the future studies she intends to undertake appear to have taken place via the Facebook pages of the various institutions and social media advertisements: "[I]f you scroll on Facebook, that courses where they give you the link, I went on those and stuff. And I checked jobs there and also like this CPUT and stuff, I check their pages and UWC on the Facebook page." Communication with these institutions regarding her applications was her only reason for creating an email account which has since remained unused.

Annie uses Facebook both as a platform to communicate with existing friends as well as connect with new people, though the way in which she describes such new interaction may be less than safe: "[O]n Facebook I'm meeting new people. You know, they stalk your profile, add you on Facebook. And then you chat." Though she feels free to express herself online, she will not do so on the profiles of people with whom she is not really familiar stating: "I won't comment on the random people's stuff." In addition to Facebook, Annie is also active on the photo-sharing application Instagram. This speaks to her use of social media in general as it appears to largely centre on the sharing of images, particularly 'selfies' as she reports: "I take selfies whole day". Social media serves as an important

means of receiving validation or affirmation from others for Annie. Her decisions on whether or not to upload and share her content online is directly related to whether she believes she will "get views on or likes on, then I'll post it". Ensuring that she presents herself in the most attractive light online is important enough to her for a photo-editor to be the only mobile application Annie makes thorough use of other than Facebook, WhatsApp, YouTube and Instagram. Once edited, the photographs are subjected to a process of scrutiny and uploaded to the platform which she believes most fitting: "It's either for a new WhatsApp profile picture, or […] if a photo is good enough, it can go for Instagram. And if it's like on point, it can go for Facebook." According to Annie, the importance placed on photo-sharing via social media is common amongst her entire friendship circle and having a quality camera is a key motivator for wanting newer phone models "because we want good photos and everything". She claimed that keeping up with trends in terms of mobile devices is not imperative for her stating "[F]or me, it wouldn't be a necessity like if I'm not going to have it then I'm going to feel left out." However, she added: "[B]ut it makes me feel nice – like I try [to keep up with the trends]", indicating at least some inclination to use ICT to fit in with her peers, as well as the potential ICT has to impact her mood and how she may feel about herself.

Annie's use of social media via her mobile phone has evolved from a free-time activity to one she engages in very frequently throughout the day, including while simultaneously doing other activities, tasks or having face-to-face conversations with others. It is what she instinctively reaches for in any moment of restlessness and boredom even when she is involved in doing something else: "[S]ometimes I'm bored. I'm even talking to someone but I'm just scrolling through Facebook or Instagram." Apart from her mobile phone and the television, Annie also makes use of a tablet on which she stores content given her phone's limited storage capacity. The tablet, however, tends to be put to use only when she finds herself temporarily without a phone. Although she has access to many within her home, Annie makes no use of a computer whatsoever.

- ***Influencing factors***

Ability and confidence

As much as ICT is integrated into her daily life and as dependent as she may be on it, Annie has a rather poor perception of her own digital ability, stating: "I'm very − I'm not good with computers. And I didn't have CAT either on school. So, computers, I don't know much of. Even if my brother come tell me 'go save that in a folder' or something, I will be like [confused] […] So, computers, I'm not so good at." This also alludes to Annie's belief that formal training and skills development is pertinent to using a device like a computer. Her report of lacking ability is perhaps not surprising

when one considers that although she is an intensive Internet user, this is almost solely via her mobile device. Her admission that she lacks ability in using her mobile as well is, however, less expected. As an example, she describes not understanding the workings and operations of her phone such as the process of updates. Such lack of understanding leads to frustration and occasionally being turned off by her phone.

> [I]t always says I must update. But it never wants to go and I don't have space. And it's always my storage and − So, my phone just annoys me. I just leave it. I just do what I want to do on it and then I leave it […] things that I don't understand, it irritates me. Or things that pop up, then I go, I don't, I don't need it, I don't know what it is. I just ignore it.

While she reports that she is able to perform actions like locating specific information online or downloading applications, she believes that her knowledge is restricted to the relatively few activities and applications she currently engages in and that she lacks confidence in attempting much beyond this.

> [On] my cell phone, I only know how to work the things that I am using. Like new apps and stuff, no. I'm very behind with my phone.
>
> I make myself believe I'm okay, but sometimes I get annoyed. Because then I don't know what's going on or I must ask someone. And people are sometimes irritated to help you. So, I would, ja. I should learn more. I should know more.

Apart from acknowledging that she lacks skills, her admission that this frustrates her to the point of some form of self-denial is worth noting.

Social support system

Annie places great emphasis on receiving instruction before attempting any new digital activity on her own, explaining: "[Y]ou must teach me how to do it, and then I did it fine. Like, just twice show me how to do something, then I'll, I will catch on quick. But you must show me." As she did not undergo any training which she perceives to be important, any such demonstration occurs in an informal setting with knowledgeable members of her social circle. Annie's ideal instructors would be her two older brothers given their close proximity (living within the same home) and their apparent advanced digital competence, as she explained: "they both work on computers. So, for them, they know everything." Her many attempts to ask the two men have, however, been unpleasant given their negative, hostile attitudes towards assisting her and the knocks to her self-esteem she has had to endure during this process. She describes: "He is very irritated by me − they think I'm just being stupid." As a result, Annie tends to largely refrain from asking for assistance and does not improve her ability.

Additionally, Annie's peers influence her digital activity given that it appears that fitting in with her social circle is somewhat important to her, as well as the validation and boost to her self-esteem she receives from others on social media.

Time

As an unemployed woman, Annie does a large share of the domestic tasks in the household while her mother and siblings are out at work. However, this leaves her with a great deal of free time during the remainder of the day. She typically spends this watching television and using her mobile phone. While Annie's fixation on the phone sees her using the device even while involved in other tasks and activities, an abundance of free time often spent "bored" contributes to the high frequency with which her device is used.

Affordability

Annie's mother covers the expense of her monthly mobile contract and the uncapped household Wi-Fi. As such, ICT costs do not appear to have any real impact on her digital usage and she is (seemingly blissfully) unaware of her total monthly mobile expenses. On the other hand, she does perceive data charges to be expensive particularly if one is unemployed as she is, and she is conscious of her data usage when out of Wi-Fi zones:

> I get credit every month, but […] it seems to go so fast, I don't know why […] But when I go out, it's like it just flies.
>
> If I'm away from Wi-Fi and then the data [usage] – that's something that irritates me.

However, having uncapped Wi-Fi in the home largely eliminates this problem, especially given that this is where she spends the far majority of her time: "[T]here's Wi-Fi at home, so I'm on Wi-Fi whole day." The free Wi-Fi at other places she frequents, like her local church where she serves as a Sunday school teacher and youth member, also somewhat reduces what she has to pay for data.

Concerns and negative perceptions

As a daily Internet and particularly social media user, Annie is aware of the potential for people to misrepresent themselves online: "People meet random people on there and then you just start being so […] You're so into this person that you don't even know really who the person is. It's a lie, and it's not good." Though conscious of such risks, this has not deterred her from interacting with strangers on Facebook even though she believes that "they stalk your profile". Despite her rather nonchalant

attitude towards such 'stalking', Annie is careful in her social media interactions with those with whom she is unfamiliar.

> [I]f I get a random invite, I wouldn't just accept. I first check a person's whole profile, mutual friends, everything. And then if he looks legit or she looks legit, I'll accept and then chat or whatever. Then I can just block. I won't give personal information and cell numbers and stuff like that.

She has, however, had negative experiences having previously been harassed by a man making phone calls and sending messages (including via Facebook). This behaviour only stopped once another male – her brother – answered her phone on her behalf.

> [I received] unwanted messages from an old stalker. And then I just ignored it and then that person hou dik[17] and hou dik, and then my brother answered the phone. And then, then it was over […] It was someone who actually saw me in the mall and then started following me on Facebook, messaging me. I don't know where he got my number. And he was just such a stalker. It was so weird.

Annie is also wary of the dangers of online abuse in the form of bullying specifically in relation to young people: "[T]his with these bullies, they post videos and then it goes viral. That child could be committing suicide or want to commit suicide because of it." Neither this, nor any other mentioned potential threats presented by ICT deter or even substantially influence her usage. Furthermore, none of the negative or riskier elements of ICT skew her perception of technology or lead her to view it in an unfavourable light. Instead she directs all negative perceptions towards the people using these digital resources for harmful purposes, placing the blame solely at their door, noting: "some people now go make it bad". Perhaps her only negative perception of the Internet itself is related to the explicit (usually sexual) content which frequently appears while online. While she views this as "disgusting", it has also not affected her online behaviour.

Environmental constraints

Poor network signal is a problem in Annie's area and loss of Wi-Fi connection has become a daily occurrence. While this is an annoyance, it does not deter Annie from her ICT engagement as she relies on her data during these periods: "I live here on top. So then, it sometimes the signals goes. It comes and goes so – but then the Wi-Fi would go off. But I can use my data […] It's every day now."

[17] persisted

- ***Annie's mental model on gender and ICT***

Annie believes that a definite power imbalance between men and women along with distinct gender roles are highly prevalent within society and her immediate community. Having had a religious upbringing and with continuous close ties to the church, she attributes the gender norms she observes in her community – in which men are viewed as superior and women are expected to adopt a submissive role – to be a product of biblical teaching, which is widespread, spilling over into non-religious groups as well.

> The men are seen as superior. And like, for example, in the church, if you read the Bible, they say the woman must be submissive to the man. Now the guys take that to a whole other level and then they already put themselves on a pedestal. And the women is just here.[18] We must just say 'yes', and 'amen' and so. Even people that's like outside, that are not [part of the church], they even take it themselves that way. They still believe the woman must cook and clean.

While she perceives these norms to be particularly pervasive amongst older generations, she also observes them amongst her own, noting that young men tend to be lazy and expect women to maintain fulltime careers while fulfilling all of the domestic and childcare responsibilities: "More in the older [generation] but the younger also. Some of the younger people, guys are so lazy, they want to send the woman to work but on the other hand also they want [them to run the household]." Annie also believes herself to be at the unfair end of these gender norms within her own home when comparing her treatment to that of her brothers, as her mother expects her to take full responsibility for the household tasks because she is female.

> I'm like 'Mommy, we all eat here. Now why must I alone wash dishes?' [Mother replies:] 'But you're the girl.' And then I'm like 'but you must take my side'. So, like that. I'm asked to do the things like, do the washing, hang the washing, do the dishes, do this, do that because I'm the girl. And I'm the only girl. So, it's unfair.

Despite this resentment, Annie claims she would not want traditional gender norms and roles in society completely removed stating: "I wouldn't say it has to be changed because it would be weird now if the guys are going to cook and you going to sit there." She would, however, prefer a more balanced dynamic between males and females and mainly takes issue when men and society at large "expect" or "demand" the duties be performed by women.

Annie believes that certain challenges females face in society are transferred to the digital space. For example, she described how differently men and women are usually portrayed online.

[18] Drops hand to gesture a lower level stature of women

> It's so easy to make the female always looks bad. It's always our name that goes down in the gutters. Like sometimes they would show like this guy, he's cropped out here, but her head is like kind of blurred. Now, if I know who you are, I would see you, I would be able to identify you, even though they blur you.

Annie also holds some perception of different characteristics or behavioural patterns amongst males and females, which she believes may disproportionately negatively affect females online. One such difference is her belief that "Girls talk but a guy would like do actions", partially based on her observations during her high school years. She relayed a story of an incident which she believes reflects the typical manner in which such a gender norm plays out in a digital context, where intimate details were exposed by a male student to purposefully shame and humiliate a fellow female student:

> [T]there was like this one thing on school still […] The guy, he posted of this girl thing because she was […] And then he posted this whole thing on her – messages and stuff. And he said even like how she was, what she did − and that was between the two them. Things like that. So, a guy ja, maybe it's just because they are heartless.

Annie's experience growing up with two reportedly highly digitally active brothers seems to have not only led her to believe that the men in her life are more skilled than her but likely also contributed to her perception that men as a whole are more knowledgeable. In her opinion this results from their greater experience with technology from an earlier age and seemingly a need to understand technology on a deeper level and a tendency to grasp the related concepts faster. Her response – particularly initially during discussion – gives the impression that she believes males to be innately better at using ICT. However, she settles into a position of uncertainty on the matter.

> Because they are from young already on their computer games and – So, they just look into deeper things and guys are more like that. I don't think girls are really [like that with ICT] […] And [guys] catch on quicker. No, I don't think they're naturally better with it. Okay, maybe they are. Oh, I don't know. Half-half.

The explanation that males "look into deeper things" could also be interpreted as a greater tendency on their part to explore with ICT independently.

4.2.11 Fiona

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Mitchells Plain	58	Coloured	Grade 10	Retrenched	Married	3

Previously employed as a machinist, 58 year-old Fiona recently found herself out of work when the clothing manufacturing factory closed down due to what she believes is a trend in a generally declining industry. She intends to continue doing clothing alterations from her home in Mitchells Plain once she is able to acquire her own sewing machine. Married, with three children and young grandchildren – most of whom continue to live with her and her husband – Fiona is adapting and settling into her new lifestyle at home. She occupies her time with a fairly routine set of daily activities. These consist of caring for her young grandchildren, doing domestic chores and attending numerous weekly church services and related events.

- ***ICT access and usage***

Fiona received her first mobile phone as a birthday gift from her husband when she turned fifty. She had not felt a particular need for such a device considering her household landline to be sufficient. However, she was won over by the mobility of the cell phone in allowing her something as seemingly minor as communicating from her front porch.

> I had a home phone that time, so I didn't worry, you know? The cell phone just came afterwards. But the house phone is alright, but I can go outside with the cell phone. I can stand outside of the house because the phone is here. So, it is very nice to have a cell phone.

She has since grown very dependent on mobile phones stating: "the phone it's something – always you need it." Multiple incidents of phones having been lost or broken have therefore been quite upsetting and left her feeling "a bit lost".

> I like to sleep on the bus. I'm so tired. And then I woke up, I forgot the phone. I don't know what happened and I was so upset because I lost my phone. And after that, I can't wait to have another one. I'm used to a phone now. I like to be − I don't like to be without a phone.

She has also reluctantly lent her mobile phone to family members on occasion leaving her in the unpleasant position of having to rely on someone else's device should she require the use of one.

> My grandchild is 13 [...] he ask me the phone. So, I gave the phone to him because they had an event at school. He wanted to have my phone. I said no but he likes the phone […] And so he took the phone and I was so lost […] so every time I had to use my daughter's phone […] I missed my phone. So you feel lost because you use – you need somebody, you want to talk. [When you have your phone] you don't need to ask for my daughter or anybody else, I want to contact that one, you know?

Fiona clearly dislikes losing the autonomy, control and immediate access that comes with having her own device. The prospect of having to be dependent on anyone else and request permission for something she is so accustomed to doing without regard, like making a phone call, is felt to be a

considerable inconvenience. She is, therefore, opposed to sharing her phone, noting that her "personal stuff is on there". This appreciation of and dependence on mobile phones has not extended to a broader range of ICT and Fiona makes little to no use of computers beyond having visited an Internet café on the odd occasion to have something photocopied or printed. Though having access to a household computer for a number of years she has had no interaction with it whatsoever. Fiona's use of the mobile phone is very simple in nature, not straying far beyond its basic communication features. The rudimentary nature of her use as a convenient form of communication when necessary is evident in her statement: "I'm not like sitting whole day with the phone but […] when you need somebody you don't need to go take a bus or something. You can just spoke over the phone. Or you've got a message." This communication is mainly with family, as well as some friends and church members via phone calls but also very much (individual and group) WhatsApp chats. The convenient contact is particularly valued in its ability to bridge the substantial physical distance between towns within the Western Cape province – given that without a car, transport is often a challenge.

> […] you know where like I'm here and I need somebody like in Franschhoek or wherever, then we can just go onto [WhatsApp] and – It was a funeral two months back and the next week it was her daughter. So, they couldn't get hold of us but through the phone then we can reach each other and help them whatever they [need].

As a dressmaker, Fiona has largely relied on word-of-mouth communication by existing clients to attract new potential buyers who then contact her via phone call to discuss orders: "[S]ometimes somebody get my number. Then they will like speak to me. I don't know, some of the people. They will recommend me, like Mrs Davids or whatever. Then we speak, so then you meet some different people." She intends to use her phone more intensely for work purposes in future, particularly in the area of marketing her services when she receives her machine and starts working from home: "[O]n the phone, [I'll] put that I'm doing this stuff. And they can [contact me] you know for jobs and whatever. It's also going to be for a good cause." However, she appears unclear as to how and via which applications or channels this marketing would occur.

As a resident of one of the province's most crime-ridden areas, Fiona appreciates the safety function of her mobile device in allowing her to be constantly connected if necessary: "Any trouble you're in, you can just phone somebody or whoever to help you. So, that is very helpful. Or your children went out and then [they can let you know] we are there. You know? They can contact you." Her mobile phone is used for little more beyond these communicative purposes. She utilises the alarm and the radio applications, though more while she was employed and spent substantially more time using public transport: "I like gospel. I like, on the phone. My earphones in, I like it […] Sometimes when I

was working then I'm on the bus then I can hear it. And I can play the whole day because Radio Tygerberg is very good with their music […] The radio on the phone." Apart from this, the only digital activity which Fiona occasionally engages in is viewing videos shared with her via friends on WhatsApp. However, multimedia is restricted to this and to that which she sees on television, for example the daily news: "I like my news on the TV." She does not actively seek out any such material online and has in fact never used a search engine as she herself states: "I'm not really on the Internet."

Though Fiona is dependent on the phone in many ways even checking it first thing in the morning "just to see if there's a message", her overall use of the phone is intentional and with a specific purpose in mind. This is in line with her self-description as a "very plain" person with respect to mobile devices, caring little for technological trends and advancements. As much as she enjoys the benefits afforded by her mobile device, she believes it is not a necessity: "If I have one, I have one. When I don't have one, I don't."

- ***Influencing factors***

Interest

Fiona demonstrates awareness and appreciation of the potential opportunities and benefits of ICT, though in no way personally capitalising on any of these activities.

> […] that's also very good with the phone, hey? To help us with things, whatever you need you can go and Google and they will explain it to you.
>
> And when you need something, you can just go on the phone and it helps you. It learns you a lot also.

Her reflections on Internet banking present a pertinent example of her admiration of ICT applications she does not in fact engage in. This was introduced to her by a previous employer, as she recounts: "I was working by this place and she paid us. I said, don't you go to the bank to put that money in? She told me no, everything is on computer." She particularly values this service for minimising the need for residents to be outdoors and at risk of being robbed in her crime-ridden community: "It's safer and it saves time. So, I think that's where computers coming in. You can pay […] It save people because today they rob. They will rob around the road, whatever. I think that's also, the computers are very helpful on that."

All indications from the initial interview suggested that Fiona had reached a point where she was open and willing to increase her digital engagement. Her expressions of interest below are with reference to using social media, Internet banking and conducting online searches:

> […] there comes a time for everything, ne? I think I'm going to try this out, maybe I must try it.
>
> I think I must go for it, hey? I must try it, ja.
>
> Maybe I must learn it – Facebook.

However, nearly one year later, there was no change in Fiona's digital behaviour, suggesting that the interest she had shown was insufficient to broaden her range of ICT activity.

Ability and confidence

A self-perceived lack of skills plays a considerable role in Fiona's ICT engagement, contributing to her avoidance of computers and limited use of the mobile phone. Her consciousness of this lack of ability results in discomfort, nervousness or fear when taking part in activities beyond the very basic features with which she is already familiar. She is quick to point out her skills deficiency by repeatedly making statements like the following:

> Sometimes, I don't know how to use it – sometimes, you know?
>
> I don't know how to work [the phone], you know? That's the problem.
>
> I don't know using the computer.

Fiona is able to distinguish between basic abilities she feels competent in as opposed to that in which she feels she is lacking: "The download, the download, I must do that, hey? Very important […] I can delete, all that I can [do] but the download [I can't.]" While seemingly somewhat knowledgeable on a concept like downloading, she lacks understanding of other typical ICT terminology, conflating concepts like YouTube and Bluetooth and confused by a term like 'app' − "I'm using the radio. And then − I think that's apps − what is that?" Fiona appears to be generally uncomfortable with increasingly advanced technology, making specific mention of touch screen devices which she finds fast-paced and difficult to operate. She would prefer to revert back to the older style feature phones with physical buttons:

> FIONA: Sometimes with the phone now, you know it's a scan. And sometimes when I scan and then − and I want to take the name off then it goes so fast man. I like the old one. INTERVIEWER: You mean the touch screen? FIONA: Ja, I don't like the touch screen. I like the one with the knobs. You can just − but this thing, it's a bit too fast for me.

Social support system

Fiona's poor perception of her own ability has left her wary of undertaking even vaguely unfamiliar digital activity without assistance. She is direct in stating "I'm not going on my own" when the possibility of her using an online search engine is broached, followed by "I need some help." The help referred to is sought from her children and grandchildren who are active ICT users. In describing her thirteen year-old grandchild for example, she stated: "he likes the phone. Oooh that boy! He will tell you more about the phone." These family members have introduced Fiona to a few possibilities and trends beyond the scope of her general usage:

> [M]y grandchildren will say come on, let's take a photo of − I see they're all into the selfies hey?
>
> Like blue tooth, I'm not used to it. Blue tooth, they learn me now.

It appears as though the teaching component mentioned in the latter extract is outweighed by the children performing the digital tasks on Fiona's behalf. When she needs information, for example, her daughter seeks this out for her online.

> I wasn't so well so I went to the chemist and they give me something. I didn't really understand what, so [my daughter] told me they're going to Google […] So, that's also very good with the phone, ne? To help us with things, whatever you need you can go and Google and they will explain it to you.

Her positive perception of the value of the Internet as a source of information therefore does not stem from her own experience, but from her observations of others like her daughter. Fiona also reportedly has very digitally active friends who spend a great deal of time on their mobile devices. However, they do not appear to be either teaching her or positively influencing her perception of ICT. If anything, observing their constant use of technology has only served to reinforce Fiona's belief that ICT is making people antisocial. Overall, Fiona expresses a desire to increase her usage via the teaching of her family members, stating: "I would like to do that. They must give me a chance. I see the grandchildren is busy and busy but they − they must give me a chance with that." This leaves an impression that those she relies on may often be too preoccupied to take the time to teach her and end up performing the tasks for her instead.

Affordability

Mobile expenses present a challenge to Fiona who acknowledges that she used her device to a greater extent when previously employed and in better financial standing to do so. "A month, [I spend] say R100. When I'm working, I do it − it's more because I've got money to but I'm at home

now [...]" She considers credit (which she pays for herself) to be expensive and finds herself unable to afford making phone calls at times: "Sometimes the credit is so fast and then you just speak and then you − and then it's over. Sometimes that [happens]. You can't − I want to call maybe somebody, but I don't have money for the credit. Maybe yes, when it's less, it will be much better."

This struggle has occasionally led Fiona to request the use of her husband's mobile phone and credit. It has also driven her to divert money intended for other purposes towards credit purchases, but she claims that this reallocation of funds has never resulted in any negative consequences. WhatsApp has played a significant role in alleviating the challenge of ICT costs and she finds the application particularly helpful at the moment given her lack of income: "You don't need to every time credit − you can make messages on WhatsApp. WhatsApp is very – it's not expensive. I'm not working, so that's very […]" Aside from these credit and data expenses, Fiona also experiences difficulty in affording a device itself and has had to go without, after having multiple mobile phones stolen, lost or broken: "I lost my phone. And after that, I can't wait to have another one. Like now, and then the one broke. And I don't have money maybe to buy but as soon as I got, I go [buy one]."

Concerns and negative perceptions

Though one gets the sense that Fiona has not given the idea of social media a great deal of thought, her decision to refrain from this may have been at least partially influenced by a negative perception based on what she has "heard" from others: "I've heard a lot of Facebook, that the people always put everything on Facebook. Every problem, every – I don't like that." She acknowledges this to be the only reason for her lack of interest in engaging, though notes "maybe I will see it differently" once becoming an Internet user.

Fiona appears to hold a perception of ICT as having different intended purposes for different generations, believing that she is "too old" for many of its features. She opts not to engage in any entertainment or leisure activities for example taking 'selfies' or playing games, perceiving this to be for younger people: "I'm not playing games. I'm too big." Given this perception, her observations that many adults engage in this activity seems to confuse her: "I don't worry with the games. Some big people like games, hey? I can see they never look up. It's just like, what's going on?" In general terms, Fiona appears to consider more meaningful and beneficial digital activity as the domain of younger people, and the more basic, simple ICT functions as intended for the wider population, including older women such as herself. This is illustrated in the two extracts below which (unintentionally) betray her outlook on the role of ICT for youth – a means of ensuring a better

career and future – as opposed to the very basic purpose of the phone in the life of someone like herself – a tool for phone calls and messages.

> I see children today, they do the computer and they do lessons, they take a course of that. Then one day they can reach a nice job and everything is computer.
>
> […] as I can see on the phone, when you need somebody you don't need to go take a bus or something. You can just spoke over the phone. Or you've got a message.

It is also noteworthy that despite her limited financial means, Fiona purchased a desktop computer for her daughter in view of this being an important resource for her future employment. Fiona, on the other hand, has had no interaction with the machine in the years since purchasing it. A perception that age somehow dictates what type of digital activity is appropriate, may restrict Fiona from capitalising on more ICT opportunities and benefits.

Despite her admiration for technology, Fiona believes those around her have become far too preoccupied with it, noting that "[T]he people don't worry about their food, they worry over the phone, yes. They rather buy them a phone." She is particularly frustrated with this fixation in her children as well as some friends and described often scolding her children: "I say 'Hey, you must eat, you're watching the TV and your phone. No ways.' […] No, I'm not into that" – and even her adult friends – "Some of my friends stay on the phone. I say, 'No!'" She appears to consider such constant usage as anti-social and somewhat of an abuse of ICT.

> I like the phone, but I don't like […] I don't like people must sit whole time [on the phone]. That's the one thing. Because later you don't care about who you're with, you just on the phone. And sometimes your eyes can't − your mind, you must be civilised, hey? But otherwise I won't say I don't like the phone. Because I know I'm not abusing the phone. I'm just using it when I need it now.

Lack of time

Fiona found that a lack of time while employed restricted her free time including that which could be spent on ICT-related activity, stating: "Time is the issue, ja − It was, ja." She believes that this will be less of a factor now that she is out of formal employment and has a more flexible schedule: "I was working the whole time, so I haven't got a chance to − I never had the chance to go into the phone and − maybe when I'm at home now." Thus far, however, she has found being a housewife makes for a very busy, long day which leaves the question of time as a factor within the context of her new lifestyle unresolved.

> I see when I'm at home, the time is fast. It goes so quick. And at work you had to [wonder] when are we going home? But at home, it's − So, it's 17:00 and 18:00 the people is coming home. Then you must dish up, go to church in the evening. So, I have a full time − Ja, at home.

Environmental constraints

Cable theft is a significant challenge in Fiona's neighbourhood and has altered her ICT behaviour in that following repeated occurrences, she abandoned the landline altogether and now communicates solely via her mobile phone: "I don't have a houseline now, no. They take the cables. Every time they take the cables out. They steal the cables. So, we had a problem every time. So, I just didn't put it in again."

- ***Fiona's mental model on gender and ICT***

Fiona's general observations of men and women, along with her experience in her own marriage has shaped her perceptions of men as being lazy, leaving women to bear the brunt of the daily responsibilities: "They can do more man, the men. They can help but they're so lazy." Her own husband's lazy behaviour, which has effectively left Fiona with the greater share of domestic chores, has led her to be somewhat resentful of his ample free time, which she does not have.

> See, my husband was on leave now for 3 weeks. He just got up, wash himself and eat and then he will go outside. Maybe clean the yard and that's all. And then he come back lunch time, then he will eat again and go sleep. I must do the washing, I must do − clean up and I must do this, I must go to the shop, maybe buy bread. He just relax more than me […] He's got more time to do all that other stuff I can't do. He's working a bit on my nerves because I must do this and this and he will just sit. You know what I mean? He got much more time.

Fiona describes her husband's ICT usage as simple like hers, perhaps even more so given that he makes no use of the Internet whatsoever, not even in instant messaging. His large amount of free time is not spent occupied with phones or computers. However, she does not believe this is the norm among men on a broader level, but believes they spend a significant amount of their seemingly substantial free time on digital activity.

> My husband got a phone. But they never − just the people will phone him from work and he will send a message to his family. But I never see he's like [a lot on] the phone. But there is a lot of men that is so, that whole day they would be on the phone. So, I think they've got more time.

In addition to her belief that there may be a difference in ICT usage between men and women because they have more free time: "I think maybe because the men have more time than a woman [they use ICT more]" – she also believes that women tend to direct what available time they may

have to (what she perceives to be) more productive activities: “Then ladies will rather do something else as women. Keep yourself busy with something else.” Despite these perceived differences in the ICT engagement of men and women, Fiona does not consider ICT as intended for any particular gender, nor does she observe any gender differences in the digital use of children. Her very young female grandchildren are described as highly adept ICT users, with even the two year-old girl playing mobile games.

Though Fiona personally experiences no conflict in her own marriage related to the use of ICT, she does observe such trends in her community. According to her, this is partially due to men opposing the significant extent to which some women currently interact with ICT and seemingly neglect household duties: “[S]ome ladies, like women, they sit the whole time on their phone. And they won’t worry about the food or whatever. Then some husbands don’t like that.” Suspicion and distrust in relationships also results in checking of phones: “[S]ometimes the youngsters hey, when they got boyfriends and girlfriends you can see they like to [check their partner’s phone], because they’re so scared of something their girlfriend […] Some women, married couples also got a problem. Checking each other’s phone because they don’t trust each other and whatever.” Fiona and her husband have little interaction with one another’s phones – she rarely uses his and requests permission beforehand when she does; he never uses hers. Neither have passwords based on her belief that this is only necessary “when you want to hide something”.

4.2.12 Belinda

- ***Demographic and background information***

Area	Age	Race	Education	Employment	Relationship status	Children
Saldanha Bay	41	Coloured	Post-school qualification	Unemployed	Married	0

Belinda is a 41 year-old woman originally from the Cape Town vicinity who recently made the move with her husband to the much smaller town of Saldanha. Currently unemployed, she has previous teaching experience – some of which was with special needs children – and holds a diploma qualification in Educare. Though not seeking work, she intends to re-enter the teaching profession at some stage in the future. Belinda is heavily involved in the church, playing key roles in the Sunday school and particularly activity pertaining to community development. She perceives herself as being creative and artistic and attempts to incorporate this into her work with children and the planning of the various projects and events she often takes upon herself. Belinda enjoys keeping busy. In addition to the domestic tasks she undertakes as a housewife, her activities vary from day to day.

- ***ICT access and usage***

Belinda's fundamental understanding and perception of ICT is aptly summarised in her statement: "[I]t's a form of communication. So, basically every day you need it. Without it, you wouldn't be able to know where you're going, get in touch with people, send letters […] Without it, you cannot − you wouldn't be able to survive." The value of technology for her is thus primarily in its communicative function, which she uses daily in maintaining contact with a range of people, including her husband, extended family, friends, church and community members. She especially finds comfort in maintaining connections with family and friends left behind in Cape Town: "I moved to Saldanha so I'm away from my family. So, I always need to know if someone is sick or if there are things happening in our family. But besides that, my friends as well. I also have friends in Cape Town, so I like to keep in touch." Daily interaction is incredibly important to Belinda and she has grown particularly accustomed to sharing the greetings and inspirational messages passed around via WhatsApp.

> I find it more now, I just love to send out messages. Basically, things I receive from people, you know, like good morning messages because for me people go through different things every day. So, just sending a message to someone letting them know that you're thinking of them or encouraging them.

WhatsApp is used for the bulk of Belinda's digital communication. This is a recent development as she spent the majority of the past few years without a smart phone, thereby restricted to the SMS and phone calls available on a feature phone.

> I'm actually a newcomer into the WhatsApp scene. My phone was stolen when I had WhatsApp the first time. It was a couple of years back. And then after that, I had a dumb phone. Listen to me, a dumb phone! One of these […] you can just basically make a call, send a message, that's it.

Her recent acquirement of a smartphone was as a result of her husband passing down his old device when he upgraded to a newer model. This was also the manner in which she first began using a mobile phone around fourteen years ago when he presented her with his old "brick" out of a need to more easily get hold of her. During the period between her first and most recent mobile phones, she has owned some brand new devices which were selected mainly by means of her husband's discussions with a store assistant on her behalf. Belinda is appreciative of her 'new' smartphone, particularly in regaining access to WhatsApp. She now relies on the texting platform not only for social purposes but also for her missionary and community work along with a range of other organisational activity she undertakes. For example, she is currently acting as the wedding planner for a woman in her area.

> … with the planning of the wedding, with the planning of the Sunday School, with the planning […] Even getting in touch with people so that we need to get things going. So, being part of a leadership team you need to inform people because things change, situations change. So, without the tools that we have, which is your phone and your laptop, without that then things could go haywire.
>
> […] everything heads back to the church […] Our purpose is missionary work. Missionary work you're going to need your computer, you're going to need your phone because it's going to put you in touch with people that are going to be giving donations that are going to be opening up your world. So, for me right now it's getting in touch with people so that they can help the community through the church.

The activity Belinda refers to in these extracts is conducted almost solely via her mobile phone with the occasional use of a computer. She considers both of these resources the "tools" necessary to undertake the type of church and community work she involves herself in. Though she does not personally own a laptop, she sometimes uses her husband's as she finds a computer to be the more appropriate platform for writing – a practice which she enjoys for reflection and organising her thoughts, almost as if a journal of sorts: "[S]ometimes I just find writing is a way of just putting your thoughts down. So, even if you're not going to communicate everything to people, writing it down actually helps. It just makes you aware of what's happening, of who you are in that space of time."

Belinda relies on the Internet – specifically Google – as a source of information: "I'm a fan of Google because for my day-to-day life, if I want to know something on any subject, Google is able to do that for me for where I am at." Her search topics reflect her personal attributes as a creative, project-oriented individual and relate to her daily activity, including activities for Sunday school children, cooking, wedding planning and biblical scriptures.

> I'm just a simple person. So, I just need to know − I always type in 'do it yourself', whatever it is. So, then it helps me with, as I said, with the wedding planning or with creative things for kids or Psalms or just basically what I need to know. Cooking also […] I love art, so − and I'm also looking at business wise.

As a self-described "creative person", Belinda views Google as the resource which enables her to really delve into this area, allowing her access to a world of new ideas and reimagining ones she already had in mind: "It's able to open up your world there as well so it gives you more options. Sometimes you have the ideas inside of you but Google just opens it up for you and gives you the pictures." Despite such highly positive perception of the Internet in this regard, she acknowledges that her actual usage in this capacity is relatively limited: "I know that the information is broad out there. I haven't really tapped into it."

In keeping with her creative nature, Belinda has come to enjoy photography on her smartphone, so much so that she would like to purchase a camera. Beyond capturing images, she believes this visual approach to be very effective in conveying her activity and information related to community projects and needs to her network and social circle.

> I am photo crazy. I actually would love to get myself a camera as well because I find – it's just amazing because once again, I can show people or I can show my family or others what I'm doing and so opening my world to them and sharing. So, they can see this is the involvement. So, I would say listen, this is Sunday School. We need crayons, we need books. How can you help? So, I actually love taking photos now, I must say.

Belinda is eager to broaden her currently limited digital engagement stating: "I actually want to open my world more to that." Her interest in expanding her range of use particularly pertains to ways to be more effective in her church and community involvement and better get her message across.

> I would be open to it, to let people know what I'm busy doing. Especially when it comes to community. Especially when it comes to causes of humanity, I would say. For example, the church needs to reach out to people out there. So, if we let people know listen, Monday we're going to be handing out clothing or food, I would then use it to better where people are at. That's how I would use it.

Her former occupation (and possibility of returning to it at some stage in future) may also motivate her desire to improve on her current ability as she notes that "being a teacher, you need to be able to use a computer". Ultimately Belinda's interest in increasing her ICT adoption is rooted in her belief that it will play a pertinent role in achieving everything she foresees for herself in future.

> I know for where I'm heading, should I have one in my hands, I know it would be a great tool in my hands.
>
> […] it would genuinely make my life better. I know that for sure for what I need to do, there would definitely be a purpose for it.

- ***Influencing factors***

Ability and confidence

Belinda believes a lack of knowledge and skills restricts her current use of ICT and claims she would be engaging in more digital activity (including online banking and shopping) were she able to do so. Though she had previously enrolled in what she describes as a "basic" computer course, she never completed it and as such it had no impact on her ability. She is forthright in expressing her limited knowledge with statements like the following:

> [I don't use] YouTube. I think it's because I don't really know how to access it. Or I haven't really […] I'm still not familiar with some terms of YouTube and all the other − like Twitter or all the other…
>
> [I don't read or shop online] also because I don't know how.

Her lack of knowledge and ability therefore extends to difficulty in accessing and using various platforms as well as familiarity with common terminology. She perceives some of these digital activities as complex and appears to be somewhat intimidated by them.

> At times it can get complicated when it should be made simpler for the everyday person to understand. It is a simple device but there are applications on there that sometimes make it complicated. And then, for example, even when we had to download the WhatsApp. Oh, that was − that was […]!
>
> I don't know how […] My brother does online banking and my husband. And I've always seen other people do it and I think to myself, sjoe, I would actually like to do that but it looks sort of complicated − I don't know.

Lack of skills currently limits her to text and imagery on the Google platform and prevents her from branching into any audio-visual content or the wealth of other channels and applications she may find useful. This is particularly unfortunate given her view of the Internet as a means to enhance her creativity and bring ideas to life. Belinda's self-perceived poor skillset is accompanied by a lack of confidence and a very conscious sense of caution when dwelling into any unfamiliar digital territory, for example the previously mentioned online shopping.

> There's no fear. The only thing would be is if − You were talking about the online shopping. There would be times where I'd end up different places and I'm thinking I better be careful because I'm going to press this button and then there's going to be a result of this. So, I'm very careful when it comes to that. But otherwise, I generally know where I'm going into. If I know I'm going to be doing a letter, if I know I need to send a message or whatever, then I know that's where I need to go into. But other than that – or if I'm looking for information. But I'm also careful on the computer.

While claiming to have no fear, Belinda later admits to the amount of "courage" it took to enrol in the training course as "it's territory that you go into that's unknown to you". Her self-acknowledged "fear of the unknown" therefore inhibits her from expanding on her currently limited ICT activity and underlines what she has identified as her biggest obstacle: "I'd say it would be myself [...]"

Social support system and learning approach

Belinda has a fairly digitally active social circle, some of whom have influenced her own ICT uptake, for example a friend introducing her to her current love of photography via her smart phone: "I

wasn't one at first but because of a friend of mine taking photos, I am photo crazy. I actually would love to get myself a camera as well because I find – it's just amazing […] I actually love taking photos now, I must say."

Belinda places great importance on being taught how to perform many digital activities stating: "[I]f I'm taught how, I would probably be doing it." Having left formal instruction, she relies primarily on her husband to assist her. However, though he appears to be quite supportive in helping as well as lending her his own devices (tablet and laptop), he has also responded in ways that could be interpreted as less than positive. She recounted:

> […] he actually made fun of me, the way I used [the tablet]. I would actually keep it close to me and then he would tell me no, don't keep it so close to you, keep it away from you!
>
> Do you know in the beginning, in the beginning I don't know what I typed − I mean not what I typed, what I did. So, my husband would always say 'What did you do?'

It does, however, appear that his comments were made in jest and that her mistakes are somewhat of a shared joke between the two of them. At the same time, she describes some occasional impatience by him in his willingness to assist – a trait she believes may be common in men: "[S]hould you ask them to help you, I don't know if it's a man thing but I tend to find the patience – they would have the patience for that time but – ask them after that [then they don't] − So, I think you have to, as a woman you have to figure it out yourself."

Belinda's withdrawal from the computer course she had undertaken was due to a poor teaching style and lack of professionalism on the part of the instructor. Belinda considered this unacceptable, particularly given her own teaching background and her sense of the standard required of someone in a teaching role. Though she had enjoyed learning, the attitude and approach of the trainer ultimately led her withdrawing from the training.

> […] when I went for the lessons, I was doing well […] And then I got quite disturbed in class and that made me leave […] In the way the teacher handled the students. And so, I had an outburst in the sense of − I wasn't rude but I just said I'm going to the manager with this. Because I don't like the way you teach. I mean, first of all, you don't use discriminatory language when you're busy with people. It could be 'I will kick you if you don't get this right' […] There were certain remarks that was made. And I don't appreciate that […] I deal with children that are special needs. Children that are excellent students but each one of them is an individual. So, as a teacher, you need to know how to help them.

This experience has not negatively affected her perception of ICT or even ICT training programmes and she intends making another attempt with a different institution and trainer: "I told myself, I need

to actually go again. But this time I will make sure that I choose a good computer school." Despite her firm belief in, and apparent preference for receiving instruction, Belinda also recognises the value of self-learning and independent exploration, stating:

> But the fun part [of using the tablet] was discovering different things on it.
>
> […] I find if I'm not going to do it myself and get to, you know, learn, I'm going to make mistakes on it.
>
> You either have to equip yourself, go and get yourself educated when it comes to the computer, or it's a matter of trial and error.

Concerns and negative perceptions

Belinda demonstrates an understanding as well as a fair appreciation of the advantages of social media and even shows some inclination to use it. She stated:

> […] when I first heard about Facebook, I thought well this is very interesting.
>
> […] the appeal for me is the fact that you can see what people are doing. You can see what people are involved in. News, media, what's happening.

Her concerns and negative perceptions however far outweigh this appeal and she assuredly states: "No, I don't [use social media]. That's because of personal preference." Belinda's opposition largely stems from a deeply ingrained scepticism of the Internet and a view of it as dangerous. She has significant concerns related to privacy and a strong belief that people expose too much online potentially putting themselves at great risk.

> With the Facebook, I feel it exposes people. Because it gives you a certain amount of privacy but there's also danger that comes with that. To a certain extent you're basically putting yourself out there. So, the world has access to you. And some things should be private, that is just my personal opinion.
>
> I just think that where do you draw the line to you as a person? What do you keep private for yourself? If people have that amount of access to you, I just think you're opening up yourself to a lot. Yes, if you do I suppose then you must know that there's going to be repercussions of that because you put yourself out there.

She believes that self-expression and voicing opinions online is particularly dangerous as you are held accountable for everything you say in the digital space.

> […] you cannot just say things freely, you're now held accountable for it. In general, we're all held accountable for what we say or what we put out there. So, even if you want to have a strong opinion you really can't voice it because you're going to be held accountable for it.

Belinda at least partially attributes her perspective of Facebook as being due to "what the media has portrayed about it." This is similar to her broader distrust of the Internet seemingly stemming "from what we hear on the media − the access people has to you as an individual." She has also heard of enough negative incidents relating to social media to reinforce her belief that it oversteps boundaries and invades privacy, conveying one such account:

> She was going for the divorce. Her son had put the papers on [Facebook] [...] So, it caused quite a stir and you know some things are private and something like that − I mean placing your own mother's information like that on Facebook. So which means you are then, you're going to cause a reaction here […] Now you give other people access to that. They have no right to it but you give them access to it. You give them a voice […] So, it was very hurtful for the person.

Her perception of WhatsApp differs markedly, seemingly due to the belief that it allows for greater personal control of the audience which the content will reach: "WhatsApp is also personal. But then again, I think you allow what you put on there. That's where you can sort of draw the line and to who." Belinda is also conscious and wary of other risks in ICT use, having personally been targeted by people with pernicious intentions.

> So, that's also just a bit, I won't say scary but unnerving. Because people then have maybe the same number as you or, for example, people calling you, people you don't know calling you, putting the phone down. So, that gives me an indication that people actually know about you or they have ulterior motives. So, yes I have had that […] they were always warning people about foreign numbers coming onto your phone, to not answer. So, I am wary of that and aware.

Her awareness of technological threats does not appear to have had any particular effect on her ICT interaction or led to any privacy measures, not even setting a password on her phone. Her privacy concerns related to such risks or scams appear to be much less embedded and have less impact than those related to personal exposure on social media. She is, for example, "willing to venture" into Internet banking yet firmly opposed to engaging on Facebook or any other such platform.

Apart from social media, Belinda also holds other perceptions of ICT which either negatively skew her stance or influence her usage. As a self-described activist against pornography, the wealth of such content online and the ease and frequency at which it appears while viewing other non-related material has substantially soured Belinda's view of the Internet.

> […] coming from a Christian point of view I detest pornography that's on [the Internet] because it's exposing things that should not even be seen. For young people especially. Even men that are married. I know it's a preference that people have, Christian or not. You have a preference for what you expose yourself to. But unfortunately, with being on the internet, these things just have a way of popping up on the screen. I don't know how they get there or − you know? So, I generally feel there's so much already in society that we're faced with and now to have it also on your screen − ja, I don't, I don't agree with it.

She is also opposed to technology's role in any actions she personally believes to be immoral: "I've even been in company of where I've heard people taking pictures of their private parts and sending it to their partners. So, things like that, I think where the cell phone comes in − it's sick." Though not directly influencing her own usage, these perceptions do cause her great concern particularly regarding younger people's use of ICT (devices, social media and the broader Internet) leading her to believe their access should be more restricted and that much closer monitoring is required.

Belinda also holds a strong belief that technology has disrupted traditional human interaction. She stated: "That's the negative part of it, where it can take communication away." It is specifically for this reason that she and her husband have elected not to have a television in their home as it consumed a great deal of their attention in the past, detracting from communication in their relationship.

> […] we don't have a television. We had one and our lives were very centred around television. And I feel − also my personal opinion − television takes away a lot of our energy […] For us right now where we are at, we've actually discovered that there's more communication in our home because there's less TV.

While removing the household television may have been a simple fix, the ubiquity of mobile phones and society's fixation with them makes this a more difficult challenge for Belinda, who is frustrated with people allowing technology to disrupt face-to-face social interaction.

> I used to get agitated by it because I would think, you're sitting in people's company and part of communication is looking into someone's face, looking into someone's eyes and their body language. And I tend to think it's selfish sometimes because they're not even aware that the one person sitting without the cell phone is sitting there.

As someone who has only recently acquired a smartphone and become more digitally active, it is easy for Belinda to recall a time before having technology as integrated into her life as it currently is. In reflecting on a period during which she had no mobile phone whatsoever she states: "I went through a stage where I never had [a phone]. Where I became quiet and I was quite fine." This reflection on her time without ICT as being a "quiet" and content period also alludes to her perception of it as useful yet also distracting, disruptive and time-consuming. While clearly

recognising much of the positives of ICT, ultimately Belinda's doubts and firm stance in her opposition regarding aspects of technology play a debilitating role in her use thereof. Her goal of reaching as broad of a base and audience as possible in promoting her church or community work, for example – which she describes as her main life purpose – is impeded in that she refrains from using the very tools and platforms which would be most beneficial in doing so.

Awareness

Belinda appears to lack some awareness in the opportunities and potential uses of technology, many of which she seems to either not have heard of or not considered. When the prospect of possible digital services and benefits is broached she repeatedly – often very excitedly and emphatically – makes statements such as: "You know, now that you're talking about it, I never even thought about that" and "You're actually making me think now. I should get my phone."

Affordability

The limited nature of Belinda's current ICT usage largely precludes costs of credit and data from being a considerable factor in restricting her engagement, particularly given the low costs of her most relied on mobile application (WhatsApp). She believes that expense will play a more significant role should she broaden her range of Internet usage to other platforms: "For me, I can generally last. Because I'm on the WhatsApp, so the WhatsApp is really a plus for me right now. But I'm sure when I have my own laptop or Tab for that matter and I need to be on the Internet it's going to be an expense, definitely." She and her husband are considering having Wi-Fi installed in their home and Belinda also has free access to Wi-Fi at her church where she spends a considerable amount of time.

Affordability appears to be more of a factor for Belinda in the purchase of a mobile phone than in the costs involved in using one and is one of the main considerations in selecting a device, as she explained: "[Y]ou go into the shop and you're just looking for a phone that's a nice price that suits your pocket." This financial aspect also determines the brand of device purchased, preventing her from acquiring her personal preferences. Finances may at least partially underlie Belinda's lack of ownership of resources which she desires, specifically a laptop. Though she has access to and makes use of her husband's, this is limited in that it is removed from the household daily when he leaves to work, placing restrictions on her time with it: "I don't have a personal computer. I'd love one though, I'd love a laptop. I'm using my husband's one, which he [takes] to the office every day."

Environmental constraints

Poor signal quite often interferes with Belinda's main use of the Internet – WhatsApp: "[…] where we are, if we need to send a WhatsApp even or call on WhatsApp the signal is quite bad and you have to stand. But it can become frustrating […]" However, this is described as more of a "pet hate", without any real impact or consequences beyond some inconvenience in delaying communication.

- ***Belinda's mental model on gender and ICT***

Since moving to Saldanha Bay, Belinda has observed a strong cultural trend of degradation of women and related low levels of self-esteem. She considers substantial alcohol abuse within the community to be a contributor to this detrimental trend: "[F]rom what we have seen, women are definitely degraded. Merely in the way they are spoken to first of all, the way they are addressed. And also low self-esteem. And I would say that it is also because of alcohol, the alcohol factor in our society." While she is greatly opposed to this poor treatment of females, Belinda agrees with societal distinctions in gender roles, mainly due to her strong Christian religious beliefs which she believes prescribe that men be the authority figure and that women adopt a submissive role.

> I mean especially coming from a Christian point of view, God has placed the man in authority, God has placed the woman there to – if you go back to the Bible, it says that we have to be submissive. But it doesn't mean that we don't have an opinion or that we don't have a right. So, I might differ with my husband but he's still the authority of the home.

She upholds this dynamic in her own marriage: "For me personally as the woman, he is my authority. I speak to him first, I go via him." Belinda is however a strong-willed and opinionated woman and attempts to balance this with her more conservative gender beliefs. She appears to walk a fine line in attempting to express herself: "I try to make my voice heard" – particularly on her strong position on women's issues – while not coming across as "overpowering" or "rude". In keeping with her view on standing up for women's rights, she believes females have a responsibility to empower themselves and change gender culture in society: "I also believe women have a responsibility. If we are not going to stand up, it goes back to in the way we carry ourselves, in the way we address people. In the way we just take a stand. So, I believe women need to take it back as well." Belinda noted that women in Saldanha Bay are taking the lead in certain aspects, appearing to be employed more than men and playing the more dominant role in institutions like the church. She attributes these patterns to an inherent nurturing trait in women. In adopting such a multitude of roles, Belinda believes women have a greater task in having to juggle responsibilities and hold everything together: "[F]rom the moment you wake up your mind is now geared on what you need to do for the day. Where is it you're going to be, who you need to see to, who is going to […]"

Where ICT is concerned, Belinda does not believe in any gender distinction in the intended end-users, considering technology to be a domain for both men and women. She does not necessarily observe this to be the case in practice, however. The men in her own social circle – particularly her husband and brother – are far more active and skilled users. They own a wider range of devices; spend more on credit and data (her husband asks to use her phone at times as he often runs out of data); engage with a more extensive range of applications and platforms; and also use ICT for purposes beyond merely that which is required of them (for example, actively choosing to engage with technology for entertainment and leisure, which Belinda has not elected to do).

> I would notice my husband uses it to its full potential. I mean to his full potential. He uses it. For example, I would maybe just have a 20% usage of it. He uses it 110%. So he's getting the maximum use out of it because he's always busy. I mean, since I've known him, phones, computers − even my brother.

Belinda does not believe that the gender disparity which exists in ICT use and skills in her own circle necessarily reflects a similar trend in broader society. She attributes the disparity in her own context as a result of the men in her life having undergone some form of training: "[I]n my case, I would say it's because they've studied for it. So, it's not a matter of women can't." She also described having come across very digitally competent women who have been educated in this area but believes that women tend to pursue these types of skills much less frequently than men. Belinda's perspective, therefore, is not related to the issue of the inherent ability of men and women, but to the question: "It's a matter of do [women] want to apply that to themselves? So, that's what I would say where I am concerned." In her view women are generally less interested in engaging with ICT than men and she attributes this lack of interest partially to lack of exposure to technology (also observing that girls are given less encouragement to use ICT than boys), a sense of fear of the unfamiliar (as is the case with her) and poor education: "[G]enerally in our society, I think maybe because people don't get exposed. Or because of the fear of the unknown as well. Or maybe even educational background also plays a part."

Belinda perceives technology and gender to be intersecting in what she finds to be very concerning ways. She believes much of the harmful gender culture and practices in society date back to far before the age of technology (as far back even as biblical times). In her view, this has been transferred to the digital space and is thus extremely widespread. Belinda believes that women are presented in a particularly negative light online and that this poor reflection of females is now more readily available in homes.

> I feel that women are definitely degraded. And this hasn't just been happening now, I mean what we actually see now is what's actually happening in the Bible, years back. It's just − There is nothing new if we go back even to – if I may – if we go back to the time of Noah. We see what the people were doing. They were busy drinking and they were having orgies, they were − so, all of this, it's just in this century that we're experiencing it in this way. But yes, definitely it is something in our society that we see every day […] I mean, when I was at school it wasn't this big. […] And then technology just got better and more advanced that it's gotten to this state.

She believes that women need to be proactive and be taking a stand against the online portrayal of females, at least within their homes and amongst their families.

> We need to let women know that this is not on. So, we as women in our homes, we also need to take a stand against it and be proactive, in a small way − it may not affect our society in a broader way, but in our homes we need to be watching what our children are seeing, what are our husbands looking at. We need to play an active role in the games and the things […] But definitely we need to take a stand as women, yes.

Belinda has also observed that women who engage in behaviour of a sexual nature online risk serious negative consequences. She gave the example of her young neighbour who was physically assaulted by her brother when he discovered that she had shared images of herself. Despite advocating for female empowerment and opposing the abuse of women, her primary reaction to this incident appears to be largely focused on what she considers the inappropriate behaviour of the young woman and young people in general, with no condemnation of her brother's violent response.

4.3 CONCLUSION

This chapter has provided an in-depth account of each individual participant's lived experience with ICT. It has contextualised each of these narratives by introducing the participant with some background information and providing a general sense of her life. The account then moved to the woman's experiences and relationship with ICT including her means of accessing technology, the purposes of usage, and the factors which have influenced such access and usage. Each woman's narrative ended with an overview of her perceptions and views, or her mental model, on issues of gender and specifically how these may (or may not) relate to ICT.

CHAPTER 5:

INTERPRETATION OF THE FINDINGS

5.1 INTRODUCTION

This chapter addresses the research question by integrating the analysis of the empirical study (in-depth interviews) with the salient literature that was reviewed. The discussion is structured according to the research objectives. It, therefore, examines the women's experiences of ICT access and usage; the underlying factors influencing such access and usage; as well as a potential relationship between ICT usage and socio-cultural gender issues, from the specific vantage points of participants in the three marginalised areas under study.

5.2 ACCESS TO ICT

This section explores the patterns of access and ownership of ICT of women in marginalised communities, specifically with respect to mobile phones, computers, the Internet and other traditional media channels.

5.2.1 Access to mobile phones

Each of the 12 interviewees owned personal mobile phones and had owned multiple devices since the time they first acquired one (dating back as far as a decade for many, and since being at school in the case of the younger respondents). This fits the trend reported by larger scale studies that mobile phone ownership is widespread nationally (LirneAsia & Research ICT Africa, 2017; The World Bank, n.d.) and in the three marginalised areas under investigation (as revealed in the Research ICT Africa survey findings, which is hereafter referred to as Research ICT Africa, 2015). Unlike the findings of certain literature which found mobile phones were shared property (Blumenstock & Eagle, 2010; GSMA, 2015), the interviewees all saw a mobile phone as a personal, individual possession. When the last two feature-phone owning participants (Belinda and Jasmine) recently upgraded to smartphones, all respondents – across all socio-demographic groups – had an Internet-enabled device. The cases of Diane (very little schooling) and Jasmine (illiterate) – who had both owned many mobile phones over the years – support the findings of Deen-Swarray (2016) that low levels of basic literacy are not necessarily a barrier to owning a mobile.

Respondents mainly purchased new mobile phones themselves and seven of the 12 had personally bought their current devices. These purchases rarely involved taking out a contract. Similarly, the Research ICT Africa (2015) study found that few women in Mitchells Plain, Saldanha Bay and Khayelitsha took out contracts when acquiring mobile phones. Five interviewees received their mobile phones as gifts from family members. The older women and housewives (Jasmine, Belinda and Diane) often received mobile phones from their husbands, adult children and grandchildren. These were typically hand-me-down, expendable devices which Diane referred to as "the scraps". In the other two cases, younger interviewees Annie and Iris consistently acquired new mobile phones that were paid for by their mothers. It is possible to make a generalisation based on these findings and the literature (Research ICT Africa, 2015): younger women and housewives are likely to receive a mobile phone from a family member.

5.2.2 Access to computers

Exactly half of the interviewees owned a personal computer (more often a laptop and in one instance a desktop machine). However, this is not the norm in these areas given the very low computer ownership figures reported in prior research (Research ICT Africa, 2015). The reports of participants from Khayelitsha also support this literature finding in that each of these interviewees who owned a computer emphasised that it was rare for women in their community to own such technology. Jasmine – the interviewee from Khayelitsha who did not own such a device – reported that not a single person among her family and close social circle owned one.

Among participants, computer ownership appeared to be restricted to those who used these machines in either a professional or a formal learning capacity. None of the housewives personally owned such technology. This is not to say that these non-owners had no access to computers. All but one, in fact, had access to one or more machine in their homes, typically owned by an employed household member. The composition of these homes makes access possible. Many of the women lived in large households where three-generational family structures are common. All interviewees above the age of 50 years shared their homes with their husbands (with the exception of single Jasmine and divorced Charlene), adult children and often grandchildren. Younger and unemployed respondents like Annie and Grace lived with their parents, adult siblings and (in the case of Grace) their own young children. This meant that most of the housewives and unemployed interviewees had some access to a computer. A larger household structure, therefore, increases the likelihood of having at least one computer within the home.

The notable exception was Jasmine, who had no access to a computer within the home. She shared the same three-generational household structure as many of the other non-owners, but unlike the others, she was the only working member of her household of eight (the rest being unemployed adult children and young grandchildren, nieces and nephews). On the other hand, her employed status meant she had much in common with most of the computer owners. However, unlike them, such a machine had no relevance to her job, nor had she ever required one in an educational context. Jasmine's limited access to a computer is in line with the literature which reported that a very low percentage of households in Mitchells Plain, Saldanha Bay and Khayelitsha had such technology (Research ICT Africa, 2015).

Jasmine is significant in another sense as the only interviewee without any experience of using a computer (her only exposure to such a machine being a brief moment observing someone else use one). She appears to be a typical example of women in marginalised communities according to the Research ICT Africa (2015) study, which found that nearly three-quarters of women had never had any interaction with such technology. However, Jasmine is not very different from many of the interviewees with ostensibly convenient home access, as this does not necessarily translate into usage. Four of the five respondents with access to a computer within their homes either rarely or never used these machines. Not surprisingly, they also made no use of a computer outside of the home and it appears highly likely that they would never have had any exposure to such technology were it not for a household member having brought it into the shared home. Jasmine and Fiona may be examples of the reported trend that those employed in manual labour positions are generally less engaged ICT users (Mapi et al., 2008; Thompson & Paul, 2016). Rashieda and Bongiwe, on the other hand, may fit the theory that employment may be a pathway to more frequent and substantive digital engagement (ITU, 2017a; Schmidt & Stork, 2008): the workplace was an important initial point of computer access for Rashieda and both women's jobs were influential in their decisions to purchase laptops. In addition to exposure in the work setting, the literature has also suggested that younger generations often display higher rates of ICT access and usage than older groups given exposure in school environments (Kantner & Rosenbaum, 2003; Milligan & Passey, 2011; Montagnier & Wirthmann, 2011). Education has been the driving force for Grace, Iris and Helga's acquiring computers. However, the assumption that young people automatically have more exposure to computers due to the school setting may not be well grounded. As the youngest two interviewees, not long out of the secondary school environment, both Annie and Grace reported that a technology module was optional in their schooling. While Grace elected to take this class, Annie did not. Annie's level of access and exposure to computers was largely the same as that of older participants with very limited engagement with the technology (for example Diane, Eleanor and Fiona). The school

setting, therefore, seemingly does not guarantee the level of exposure commonly assumed. Based on interviews, the structure of the household was much more pertinent to the computer access and exposure of young Annie and older Diane, Eleanor and Fiona.

Gaining access to computers at a public space was also rare among interviewees and only three women (namely, Bongiwe, Iris and Grace) capitalised on these local resources. Two of the three did so in addition to using their own devices. The interview findings could be interpreted as correlating with that of the Research ICT Africa (2015) study which concluded that women's use of computers in e-centres and public spaces or institutions remains relatively limited.

5.2.3 Access to the Internet

All but one participant had accessed the Internet at some stage. Some degree of access and exposure to the Internet had thus occurred among participants across the range of socio-demographic categories. The fact that the exception is Jasmine – a 59-year-old woman with no formal education whatsoever – is consistent with the literature that found that the level of education and basic literacy has a strong influence on whether or not the Internet is used (Deen-Swarray, 2016). The literature indicates that the likelihood of having used the Internet is low among women with little to no education and a lower level of literacy (Bornman, 2014; Deen-Swarray, 2016; Research ICT Africa, 2015; World Wide Web Foundation, 2015b). Jasmine also appeared to confirm the research associating Internet uptake with age, where fewer older women had ever connected to the Internet (Gillwald et al., 2018; Research ICT Africa, 2015).

Given that half of the interviewees reported that they had limited to no use of computers, it is not surprising that several respondents (four of the 11 Internet users) connected to the Internet solely via their mobile phones – another trend which emerged strongly in the literature (Research ICT Africa, 2015). Three of these four were the oldest participants. Interviewees owning computers and other digital devices (e.g. tablets) tended to connect with a multitude of accessible resources. The respondents who used the Internet, tended to do so relatively frequently. Similarly, the Research ICT Africa (2015) data showed a high frequency of accessing the Internet by women who had been exposed to this technology.

The most common means by which interviewees connect to the Internet is through prepaid mobile data purchases. Few had invested in Wi-Fi for their homes or reaped such benefits via the investment of a household member, though Diane's case again revealed the phenomenon of access to ICT – in this instance Wi-Fi – solely as a result of household members. The workplace had also been a place of access for two interviewees, Charlene and Rashieda. As previously stated, use of designated public

ICT spaces – and thereby the available Wi-Fi – is relatively uncommon. Grace in fact preferred standing outside the premises of a nearby school within range of the Wi-Fi and connecting from her mobile phone (without authorisation) rather than visiting the library which is within equal walking distance from her home. This was reportedly simply a personal preference. While use of designated public ICT spots is fairly unpopular, spaces unintended for this purpose emerged as frequently used Internet access points. Several interviewees capitalise on free Wi-Fi available at their local community churches. Given that a substantial number of interviewees are active church-goers, it is not surprising that they reported that they spend a fair amount of time at these community buildings during which they connect to the freely available Wi-Fi via their mobile phones. These women were diverse in age, employment status, education and relationship status. The interview with Charlene occurred at the church premises and – despite generally having data loaded on her mobile device and Wi-Fi within her home – she immediately connected to the church Wi-Fi network upon arrival at the building. It was reported that elderly women within the church – constituting a significant share of the total church membership – are increasingly capitalising on this resource. Certain churches in Saldanha Bay reportedly purposefully use Wi-Fi as an incentive to attract members to attend services. This not only drew church members but surrounding community residents who sat outside the premises to access this resource. ICT usage within church settings may not be viewed as appropriate at all times. However, there did not seem to be opposition to the use of mobile phones either before or after services. Charlene's portrayal of churches as widely recognised within the community as primarily female spaces, where women play a dominant role, is thus worth noting.

Small business owner, Iris, stressed that Internet access within local public spaces is essential in advancing the digital inclusion of her under-resourced community of Khayelitsha and that access at vibrant local business hubs would be more successful than designated e-centres in drawing locals to engage. A few of the more avid Internet users among interviewees had become accustomed to seeking Wi-Fi access at certain public spaces which offer this resource when they happen to visit, for example the local mall or restaurants. Most interviewees did not, however, consider this. While prior research (such as that of Research ICT Africa, 2015) has explored citizens accessing the Internet from designated e-centres, there appears to be a lack of information as to the extent to which the Internet is accessed in such more informal public settings.

5.2.4 Access to television and radio

The interview findings correspond with prior research which showed widespread ownership and use of traditional devices (specifically television and radio) in Saldanha Bay, Khayelitsha and Mitchells Plain (Research ICT Africa, 2015). Ten of the 12 interviewees had one or more televisions in their

homes at the time of the interview, which they watched either daily or relatively frequently. Charlene was the only participant who owned a smart television. Radios were also common in the households of respondents. In certain cases (such as that of Rashieda and Jasmine), these were preferred to television. Traditional devices were used by the respondents in all socio-demographic groups. They formed part of the routine daily activity of the least digitally engaged interviewees (Jasmine and Fiona). Using the radio application on her mobile phone when travelling to and from work was one of very few ways Fiona reported that she used her phone.

5.3 USE OF ICT

Apart from the purposes for which interviewees use ICT, the way in which they view and relate to their devices – specifically their mobile phones (given that this is either largely or solely the device in use by participants) – provides an interesting picture of the manner in which technology factors into the lives of these women. This section thus begins with a brief overview of the nature of the relationship between respondents and their devices. This is followed by a discussion of the various ways in which interviewees have used or found meaning in ICT.

5.3.1 Relationship with ICT

The strongest sentiment shared among interviewees was a fierce attachment to and dependence on their personal mobile phones. This was common to those of all socio-demographic backgrounds and across the spectrum of ICT usage, from the most basic to advanced and intensive users. Respondents were typically willing to go to great trouble and inconvenience and make sacrifices to ensure they remained in possession of an operational device loaded with credit and/or data. Interviewees' accounts of the relationships with their devices revealed great affection for these inanimate objects. This included many expressions of "love" for the phone, references to it as "my baby" and descriptions of being incredibly protective of the device. In cases such as that of fifty year-old widowed and divorced Charlene, the device had evolved into an emotional crutch, largely replacing human companionship, interaction and support.

Being without the accustomed technology was typically a source of great frustration and annoyance for participants regardless of whether it be a short period of a few hours or longer indefinite periods. In the absence of ICT, many experienced a sense of feeling "lost", "stranded", "disconnected" and as if "something is missing". An impression is left that the phone had almost become an extension of the self for some, as Charlene commented: "because it's constantly in my hands". More extreme descriptions indicating the level of dependence on the device include: "I will be sick. I really can't

cope without my phone"; "If I think I lost my phone, I'm dead. It's not nice. That whole shock."; "life will stand still [without my phone]"; "If I don't have my phone on me? Then I'm going to get crazy."; "Without it, you cannot – you wouldn't be able to survive." While these statements are clearly hyperbolic, they give a good indication of the extent to which the mobile phone has become embedded into the lives of all of the participants. For many interviewees it is checked first thing in the morning and last thing at night. At least one respondent acknowledged that her excessive use of the device at times leads to phone fatigue.

Ultimately, a dependence on ICT was consistent among all of the users, though the reasons for it varied significantly. The following section provides an overview of the purposes for which participants used ICT.

5.3.2 Access to information and services

- ***Information seeking***

Interviews revealed that several Internet users had not used the platform as a resource to find information. This was particularly true of older interviewees: the four oldest participants reported doing very little to no online information seeking. Given that these participants were predominantly retirees and housewives, this corresponds with the findings in the literature that retired and unemployed women tend to be consistently less active information seekers (Research ICT Africa, 2015). Additionally, the interview findings may support the literature which reported a pattern between level of education and searching for information (Research ICT Africa, 2015). The three respondents who said that they made no use of the Internet for this purpose are also those with the lowest levels of education. On the other hand, the same prior research (Research ICT Africa, 2015) portrayed self-employed women as not particularly active in information seeking, which was not the case with entrepreneurs, Bongiwe and Iris (though it should be noted that the latter had only very recently begun engaging in such activity).

The literature revealed that online information retrieval (particularly quick fact finding or checking) was common among female Internet users (Research ICT Africa, 2015); that women are highly positive about accessing online information (Colley & Maltby, 2008); and that gaining information was a significant motivator for women in acquiring a mobile phone (Cowell, 2016). In this study, seeking information was not a primary reason for participants initially acquiring phones. However, gaining information online had become a highly valued use of the Internet by participants who engaged in such activity. This is evident, for example, in Belinda's statement of appreciation: "[Google is] able to open up your world there as well so it gives you more options. Sometimes you

have the ideas inside of you but Google just opens it up for you and gives you the pictures." It was however not Belinda but mainly the most frequent and engaged ICT users among interviewees who really made use of the Internet as an informational tool, specifically those participants who had long since adopted technology and had embedded it into much of their daily activity. This typically also coincides with employed and relatively younger participants. Several interviewees (like Belinda), who expressed great appreciation for this resource, had only recently begun to engage in such activity. This suggests a growing trend in the use of technology for informational purposes. It is worth noting that Internet users, Fiona and Diane, who had never sought information online, were, in fact, among those who had a very positive opinion of this function of technology.

Interviews suggest that the adoption of the Internet as a tool for information seeking is often only initiated once an individual perceives a specific subject to be of particular importance. In the case of self-employed Iris, it seems that this function of ICT was only explored once its pertinence in attaining her career goals became apparent. A need to obtain information relevant to one's occupation or professional ambitions has proved to be a significant motivating factor for several working participants who engage in information seeking. On the other hand, it has been less in use in looking for employment in the first place. This accords with the literature (Rashid, 2016; Research ICT Africa, 2015). Two respondents – Grace and Charlene, who were notably avid ICT users – intended to seek jobs in the near future. They reported that they would largely be using offline channels in this process (i.e. word of mouth or physically visiting businesses to inquire about available positions). Sourcing information online is also a method used by all interviewees who had recently been enrolled in studies of some sort. This is supported by prior research suggesting women use the Internet as a tool for educational research (Bujala, 2012; Gillwald et al., 2018; Hilbert, 2011; Li & Kirkup, 2007; OECD, 2007; Rashid, 2016) and that this is an activity women engage in more often than the 'fun' features of technology (Wilson & Lawan, 2015). Information seeking is thus utilised by women for broader economic and educational benefits (expanded on in sections 5.3.5 and 5.3.6 below). This corroborates the literature showing that it is relatively common for women to use the Internet for more substantial research (Research ICT Africa, 2015). Apart from these important professional or educational motivators – where some degree of information seeking is often compulsory – a personal passion or hobby was also a catalyst for some participants' interest in engaging in such digital activity.

The content browsed by interviewees (outside of that related to an occupational or formal educational context) includes exercise, cooking, parenting, décor, religion, pop-culture, 'do-it-yourself' projects and often seemingly trivial material. Finding health information was a topic of

interest to several interviewees. While this finding contradicts the literature reporting that health information was not commonly sought by women (Research ICT Africa, 2015), the same study found that two-thirds of women owning mobile phones had identified health as an area in which the device was personally beneficial (but did not specify in what way it was beneficial). The interview findings also accord with other research indicating that women do in fact take an interest in content related to health and care-giving (Bujala, 2012; Gigler, 2015; Kennedy, 2011; OECD, 2007; Rashid, 2016). Additionally, the empirical results of this study support the research that found that there is little use of the Internet to gain information from government organisations (Gillwald et al., 2018; Rashid, 2016; Research ICT Africa, 2015). Though a few of the most digitally active interviewees turn to dedicated online news platforms, for most participants, news and locally relevant information was still largely received via the television, radio and word of mouth. This supports research findings that women still largely rely on passively absorbed information from traditional media or family, friends and acquaintances (Research ICT Africa, 2015; World Wide Web Foundation, 2015b).

The pattern of a number of the interviewees' information consumption also suggest that even when women gain content from online sources this is often by chance on social media rather than having actively conducted an online search. According to Gillwald et al. (2018), 60% of South African social media users (male and female) use these platforms to access the news, while Roux and Dalvit (2014) reported that social platforms such as Facebook serve a broader information-sharing function as people share and discuss news and current events. Five of the eight respondents with social media accounts at the time of interview were using Facebook to gain information of some sort. Social media was thus a primary source of information, particularly for the youngest interviewees who – as reported in the literature (Gillwald et al., 2018; Intel, 2012) – tend to be heavily invested in these platforms. However, it appears that interviewees in this age group turn to a search browser in addition to their intensive use of social media. A degree of interest in the information they randomly come across via social media may lead them to engage in further research on the topic.

Social media was also used to consume information of a more serious nature, for example Charlene acquiring information regarding health matters and Annie seeking formal learning opportunities. Though not specific to females, Gillwald et al. (2018) reported that 43% of South African social media users used the platforms to access educational content or find out about learning opportunities. Given that many of the interviewees using social media did not follow trusted sources and publications, it stands to reason that the information they consumed on these channels was almost exclusively passed on by individual personal contacts and therefore mostly likely unverified or even false. While some of the most avid and long engaged Internet users tend to be aware of a bulk of

misinformation online, the level of critical thought (or lack thereof) among interviewed women surrounding the discernment of information sources and their trustworthiness is a matter of concern. This is significant given the fact that several respondents' perspectives and behaviour were based on or swayed by information consumed online. Examples include Annie adapting her eating habits and Rashieda forming negative opinions of particular groups of people.

Some of the respondents who began using the Internet at an earlier stage and had become frequent Internet users may have gradually integrated information seeking into regular daily online activity, while more recent Internet users had just begun tentatively exploring in this area and were more limited in the online platforms used. Whereas several more avid ICT users had come to incorporate platforms like YouTube in their information seeking (and information in video format was increasingly sought and/or preferred), less engaged and more recent Internet users' searches were relatively narrow and often limited to textual content via a search browser. Furthermore, the process of moving beyond very specific searches towards substantial periods emerged browsing online material across multiple platforms appears to be a gradual one, even among some avid Internet users (notably, early adopter Charlene's transition was very slow). This relates to the literature which reported that the longer women are online, the more they tend to capitalise on the Internet's potential as a source of information (specifically with respect to gathering more substantial material) (Intel, 2012). Internet users among interviewees (including Rashieda, Bongiwe and Annie), who were initially drawn to a search browser with a specific purpose in mind, have moved to frequently investigating a broader range of topics of interest. They often searched impulsively or out of curiosity and they allowed themselves free rein to explore a topic. It is thus logical that the typical means of conducting such activity (particularly something that is quick to do like fact-checking) was via the mobile phone, given that it was always on hand.

- ***Access to services and applications***

Interviewees were not extensively capitalising on the wide range of digital services available to them via their devices. The fairly low uptake of Internet banking among women in these marginalised areas reported in literature (Research ICT Africa, 2015) resembles the diffusion of this technology among participants where only a few – notably employed and/or relatively middle-aged – women had incorporated it into their financial practices. Such transactions were conducted via either mobile devices or computers to pay debts or purchase utilities or mobile credit. Though they made no use of Internet banking, there was a perception among several interviewees (for example Fiona, Iris and Belinda) that this service was highly beneficial, particularly as a means of saving time. Other online transactions like purchasing goods or services or connecting with government institutions were rare

among participants, even among more avid ICT users. The limited use of digital government services in South Africa was consistently reported in the literature as well (Gillwald et al., 2018; Research ICT Africa, 2015). Some of the more digitally engaged interviewees had at some stage used mobile applications intended to help them to carry out their personal tasks more effectively. Examples include fitness, organisational and learner's driver's licence preparation applications. Even for those like Fiona and Jasmine who made very little or no use of digital services, the mobile phone was used daily in its very basic offline function as an alarm clock.

An undoubtedly more commonly perceived purpose of ICT is its role as a safety measure. The interviewees reported that they enjoyed the security of being able to communicate with authorities or loved ones in the case of an emergency. It was a very important, if not the most critical, function of the device for them. This trend is also very clearly reflected in the literature (Research ICT Africa, 2015). Several interviewees had replaced the landline in their homes with a mobile phone, making it either the primary or sole resource relied on in the case of an emergency. Safety was the main reason for Diane initially receiving a mobile phone and remains the main reason for ensuring that it is consistently loaded with credit. The Interviewees who focused on the safety function of the device tended to be older, spent a significant deal of time alone (typically housewives, divorced or widowed women) – as was the case in the prior research (Research ICT Africa, 2015) – or lived in particularly dangerous neighbourhoods. Both the literature (Research ICT Africa, 2015) and these empirical findings showed the safety aspect to be one of few functions of ICT meaningful to women of all levels of education. Having access to the Internet in their homes was also perceived by respondents like Fiona as potentially increasing safety in that it minimised the need for people to leave their houses and put themselves at risk of being robbed or assaulted. Alleviating the challenge of crime in any capacity makes ICT pertinent to women's very practical challenges and needs (Kalani, Sonawane, & Sawant, 2013).

5.3.3 Social purposes

The interview findings support the abundant literature that indicates that the strongest (and often sole) motivation for many women's ICT usage is its communicative value (Cowell, 2016; Gillwald et al., 2018; Handapangoda & Kumara, 2013; LirneAsia, 2012; Masika & Bailur, 2015; Research ICT Africa, 2015; Scott, 2017). Interviews revealed that digital communication was a useful means of maintaining ties with friends and family members both near and far. For example, daily conversation between Diane and her daughter was an easy way of dealing with routine, practical activities such as grocery shopping. Many respondents saw using the phone to make long distance calls as more important. This was related to the strong trend of migration particularly among interviewees in

Khayelitsha and Saldanha Bay. Most participants living in Khayelitsha had migrated from other provinces in search of employment and schooling opportunities, while some Cape Town natives had relocated to Saldanha Bay when their husbands found work in the area. These women (Belinda, Helga, Diane, Jasmine and Eleanor) considered the mobile phone as a crucial means of maintaining their long-distance connections, thus adding to the literature which describes the value of the device in contexts where family separation is common (Lim, 2014; LirneAsia, 2012; Masika & Bailur, 2015). Jasmine reported that she would be even more dependent on her phone in the near future as she was due to move back to her home province without her children and grandchildren. The considerable distance between areas within the Western Cape also underlies the communicative value of the phone as most interviewees did not have easy access to privately owned vehicles and public transport is unreliable, inconvenient and increasingly dangerous.

While modern forms of interaction like instant messaging had grown in popularity among interviewees, the traditional mobile phone call remains common and heavily relied upon by strictly offline participants like Jasmine. The continuously high number of offline citizens reported in the literature (Gillwald et al., 2018; ITU, 2017a; Research ICT Africa, 2015; The World Bank, n.d.) underlies the phone call remaining a substantial part of digital communication of many Internet users as well, given that they typically have close ties to non-users (often older family members). Nevertheless, both the literature (Research ICT Africa, 2015) and the findings of this study indicate that instant messaging has become a primary means of communication among women. It was used by 11 of the 12 interviewees, thus was common among women of all socio-demographic groups. WhatsApp – the favourite platform for such interaction – was embedded in daily communication and highly regarded by interviewees for its cost effectiveness and ease of use. For Fiona, online activity was restricted to this single communication channel. The use of WhatsApp is thus all that distinguishes her from the many completely offline women referred to in the literature.

Instant messaging is therefore significant in that it is typically the entry point to Internet adoption for many women. This thus supports research which suggested that when low-income urban women do become Internet users, a large share of activity is social in nature (Intel, 2012). Certain participants appeared to have only become open to the prospect of exploring other online avenues and opportunities – most notably information seeking – after having become comfortable with such (seemingly) basic socially-oriented Internet activity. Given the significant role the social aspect of ICT usage plays in increasing women's digital participation, the interview findings support the claim of the World Wide Web Foundation (2015b) that social use of ICT constitutes a useful entry point to other forms of digital activity for women. Considering the typical digital trajectory of interviewees,

particularly those with relatively limited ICT engagement, social media – Facebook – appears to be one such activity women commonly branch out to after instant messaging. All but two Internet users among respondents had (at some stage had) Facebook accounts. The literature also revealed Facebook accounts to be popular nationally (Gillwald et al., 2018). In the Research ICT Africa (2015) study slightly less than half of women using the Internet were involved in social networking. The survey (Research ICT Africa, 2015) also showed that social networking was the foremost reason for women initially opting to use the Internet, thus concurring with this empirical study's findings that socially-oriented activity is a clear driving force for Internet engagement.

Certain rather distinct differences emerged between respondents in various life-stages where socially-oriented digital activity is concerned. For many older women and housewives (often largely confined to the home), engaging in social interaction and remaining connected to family members was crucial to, if not their only form of digital participation. The perceived importance of maintaining this contact was the primary reason that numerous participants initially purchased or were given mobile phones by husbands and family members. Acquiring (or being gifted) phones in view of maintaining contact is also in line with the literature (GSMA, 2015). One interviewee, Jasmine, is an interesting case in the context of maintaining connections via her mobile phone. She appeared less interested than other participants in the phone as a way of maintaining family ties than in its helping to remain connected to her local neighbourhood friends. As a single, generally financially struggling woman, living in the township, with no extended family in the province, the relationship with these local women was of particular importance to her: maintaining these connections was the primary meaning of her device. This is in line with Woolcock (2005) who emphasised the relevance of the role of ICT in social capital within urban poor communities where there is particular reliance on the social circle (friends and relatives) to 'get by'. Along with WhatsApp and traditional phone calls, older interviewees like Charlene, Diane and Eleanor used social media to keep track of family, friends and acquaintances, typically visiting the social network site, Facebook, on a daily basis via their mobile phones.

For the youngest respondents – Grace, 21 and Annie, 19 – communication with friends and peers of a similar age was a particularly powerful driving force in digital participation. Aversion to the prospect of being disconnected and excluded from the day-to-day developments unfolding within their respective social circles underlies the high frequency with which these young women engaged with their devices, using texting, voice and video call features. These participants had social media embedded in their digital activity since their early teenage years and fit the description in the literature of young women as more intensive users of social networking (Gillwald et al., 2018; Intel,

2012). The content these young interviewees consumed on the platforms often became the topic of conversation during face-to-face social interaction with friends. Annie and Grace also differed from older participants in that they frequently used social media as an additional instant messaging channel and connected with strangers (from around the world). Older interviewees on the other hand were extremely selective about the people with whom they actively engaged online, typically not straying beyond their close social circle. Though it is not evident what – if any – impact these broader social connections have had for the young interviewees, it is clear that they were the only ones capitalising on the opportunity afforded by ICT allowing women to expand their connections beyond their immediate social and community networks (Arnold et al., 2012; Zainudeen & Galpaya, 2015). The younger women were also far more eager to belong to multiple social network platforms than their older counterparts, all of whom were reluctant to subscribe to a second application. Annie and Grace's strong interest in other social media applications such as the photo-sharing platform Instagram is indicative of the differing perspectives of social networking which emerged among age groups. Young interviewees appeared far more aware and focused on online image and self-presentation, evident in their great affinity for taking selfies (not a feeling shared by older participants).

The interest in social networking platforms among young and old interviewees was very clearly not the case among those falling into the mid-age range. All participants aged between 30-45 years were far less inclined towards such activity. These women were either completely inactive or less active on social networks than other age groups. Furthermore, when active they tended to employ these sites for purposes other than general social interaction. Rashieda only used social networking as she was required to do so in her previous occupation and deactivated her account immediately upon resigning; entrepreneurs, Bongiwe and Iris perceived Facebook as only having value in a professional context and made little use of it outside of this; Helga's reluctant social media participation was solely based on it being required of the church leaders; and Belinda – having no professional or organisational need for social networking – opted not to participate whatsoever. These women thus had very little interest in the social aspect of these social network applications. Iris's minimal interest in the overall social function of ICT is noteworthy. She considered it to be largely trivial and made little use of her mobile phone outside of work hours.

The digital behaviour of those in the youngest and oldest age categories may thus fit the popular narrative of women being heavily concentrated within the communication and social applications of technology (Bujala, 2012; Duggan, 2013; Gillwald et al., 2018; GSMA, 2015; Haight et al., 2014; Hargittai & Shafer, 2006; Intel, 2012; Joiner et al., 2012; Keller, 1992; Kennedy et al., 2003; Roux &

Dalvit, 2014). However, participants in the mid-age range debunk the stereotypical association of women's digital engagement with the social paradigm and instead act as corroboration for the notions of Abbiss (2008) that females are "task-oriented users" focused on utilitarian functions of ICT, and Tondeur et al. (2016) that females take a pragmatic approach to ICT and engage in activities they find useful. Furthermore, the particular age bracket and life-stage of these women – in which having relatively young children, being married and working fulltime are more common – is significant and supports the literature indicating that greater restrictions on women's time may in fact drive them to be more strategic and task-oriented Internet users, adopting only activities serving a functional or productive purpose (Scott, 2017; Sylvester, 2016).

5.3.4 Cultural, emotional and spiritual needs

While the communication function is undoubtedly underscored by a need for connection, for some it has evolved into more. For fifty year-old widowed and subsequently divorced Charlene, ICT had long since largely replaced human companionship and been used as a means of overcoming boredom and loneliness. This began during her time as a housewife, intensified with the passing of her first husband and now as a divorcee with adult children and limited social engagements, she relied heavily on her phone for companionship and emotional support. In a very different sense, technology also formed a source of support of sorts for another interviewee. Though not socially isolated, Rashieda felt somewhat marginalised as a Muslim woman, perceiving local mainstream media as not catering to her cultural context. She therefore found a lesser known Muslim radio station and the topics of conversation which were personally relevant to her context to be a source of support and comfort, particularly during more difficult periods such as fasting time. This may be related to the literature which details how minority groups may not identify with mainstream media or see themselves represented within it and thus seek out minority or ethnic media to meet their specific cultural needs and enhance a sense of belonging (Georgiou, 2002; Morley, 1999).

Interviewees were also drawing on ICT to meet their spiritual needs. Based on discussion thus far, it could justifiably be argued that the church and/or religion on the one hand, and ICT on the other, have overlapped: Helga's Facebook subscription was solely due to her church activity, Charlene and Belinda facilitated their church organisational duties through the use of ICT, Charlene often read Bible scriptures on her digital devices instead of the traditional book, and – perhaps most notably – the findings suggest that the church may have become associated with free Internet connectivity. Apart from her church activities, Belinda had also integrated ICT into her spiritual life by typing out her thoughts and reflections on a computer. She believed this process of reflection to be pertinent to her mental well-being.

While ICT seemingly had a positive impact on Belinda's mental well-being in this example, it is less clear in the case of Annie. Her decisions to take selfies "whole day", was almost solely underscored by the need to share these self-portraits with an online audience on social media. Receiving positive affirmation from others (via the number of 'likes') on these online channels had a positive impact on her mood and seemingly reinforced self-worth. Social media platforms could thus be considered as a means of seeking external affirmation and validation, potentially alluding to a connection between digital activity and self-esteem, particularly with regard to young female users. A link between feedback on self-images on social networks and self-esteem has been described in multiple studies focused on people around Annie's age (Burrow & Rainone, 2017; Chua & Chang, 2016; Valkenburg, Peter, & Schouten, 2006). As was the case with Annie, these studies showed that edited self-presentation on social networks is a means of seeking peer recognition (Chua & Chang, 2016), and that positive feedback on profile pictures enhanced self-esteem, whereas negative feedback decreased self-esteem (Burrow & Rainone, 2017; Valkenburg et al., 2006).

5.3.5 Economic and occupational use

Previous studies varied in their reports on the degree to which women value and capitalise on ICT in a professional or economic context (Gillwald et al., 2018; LirneAsia, 2012; Masika & Bailur, 2015; Munyua, 2009; Scott, 2017). The responses of participants in this research show that many of the economically active interviewees perceived this as an important, if not the most meaningful function of ICT. This supports the literature which indicated that women perceive positive effects on income and employment as a primary benefit of technology (Scott, 2017). Small-business owner Iris's transition to becoming a more active ICT user was solely motivated by her new business goals and her digital engagement was highly oriented towards increasing productivity. For interviewees who had recently opted to participate in digital skills training (namely Iris, Bongiwe and Rashieda), this was also solely driven by profitability and professional goals, i.e. learning how to effectively capitalise on technological tools to advance one's business or acquiring certification to pursue better employment opportunities. Even among some not employing ICT in a work context, there was a perception that it had a critical role to play in professional advancement – though they might not perceive this as relevant in their own economic activity. A case in point is Fiona who largely associated financially profitable uses of technology with younger users, essentially ignoring its potential in her own professional entrepreneurial ambitions.

Employed or self-employed participants mainly considered ICT indispensable in the daily functioning of their professional and economic ventures. For Bongiwe, whose company was centred on the use of technology, ICT was integral to and integrated into every aspect of her business functioning. She is

thus an example of a woman who capitalises on the new employment and income opportunities afforded by ICT (Antonio & Tuffley, 2014; Broadband Commission, 2013; ITU, 2015; Ponge, 2016). Technology was also woven into the professional practices of most other economically active participants, whether minimally or fully embedded into daily tasks. The most commonly employed use of technology in these contexts is the communicative function. In the Research ICT Africa (2015) study, 63% of women's phone calls were more for business than social purposes. Many interviewees capitalised on multiple channels for this purpose including phone calls, email and (to a lesser extent) video communication platforms. However, the often informally used WhatsApp had become increasingly relied upon in work communication by nearly all economically active interviewees. This was used in formal exchanges as well as more informal interaction in small-scale business ventures, such as Eleanor informing a few community members of her upcoming food sales. A WhatsApp group chat was also Helga's primary means of communication with the parents of her young learners. Digital communication had become imperative in business functioning for many of these women, evident in Iris's statement that this was a matter of urgency in her small business and her main motivation for ensuring her phone remains switched on and at hand at all times.

Social networking for professional purposes was also relatively common among working interviewees, with some employees having no choice in the matter. Self-employed Iris and Bongiwe recognised this as an important professional tool and created Facebook pages dedicated to their respective businesses. As previously stated, these women did not generally enjoy social networking applications. They had a tendency to neglect maintenance of their business pages on these platforms, making word-of-mouth a continuously common means of marketing. While the intention to employ social media channels for economic gain may be increasing among female small-business owners, their effectiveness may be questioned. However, the entrepreneurs interviewed said that they derived some benefit from social media that were in line with their professional goals by subscribing to entrepreneurial pages and joining groups of like-minded individuals for guidance and motivation. Bongiwe also employed the platform for market research to seek "business opportunities to see like what other people need and all of that, what I can offer". Gillwald et al. (2018) report that a relatively small proportion of South African social media users use these platforms to make professional and business contacts, as well as marketing their products or services.

A need to obtain information relevant to one's occupation appeared to be a driving force in interviewees' digital information seeking, evident in teacher, Helga, finding material for her lessons and entrepreneurs, Iris and Bongiwe seeking information to improve their services and expand their

businesses. Many working interviewees used ICT in carrying out much of their daily work operations, particularly with respect to those with administrative responsibilities. A significant recent change by Iris to her business practice, for example, was to store data digitally rather than through a paper-based system. The participants who were most committed to using ICT in their business functioning were also typically those who owned computers and tended to use their multiple devices in these operations. Bongiwe noted: "[T]he laptop, the phone, everything, anyway. It goes hand in hand". The respondents recognised their mobile phones as pertinent in their business practices, especially in the running of a small-business. This relates to prior research which identified the smartphone in particular as the technology women were using to advance economically (Cowell, 2016). The interviewees' adoption of technology in the work context was, therefore, largely with the intention of increasing efficiency, saving time and improving organisational processes – precisely the impacts of ICT for women which was hoped for in certain literature (Ponge, 2016). Charlene, for example, stated: "[ICT is] supposed to lighten my job […]" The flexibility of the technology, which made it possible to carry out work from anywhere, was also highly valued and emphasised by participants like Bongiwe who carried out her work in various spaces. This corroborates the literature (Antonio & Tuffley, 2014; World Bank, 2016) describing new-found flexibility as significantly benefiting women.

While the adoption of technology by interviewees in the professional context appeared to be growing, there was a reluctance to adopt ICT to the extent where it could be truly beneficial. Respondents with small income-earning ventures or ambitions (namely, Eleanor and Fiona) appeared to have given little thought to adopting ICT into their practices beyond basic phone calls or WhatsApp messages. While these two women did not extensively use technology in general, several more avid digital users (for example Grace and Charlene) also used offline channels when ICT might have been useful. Job-seeking was, for example, still often done via word-of-mouth and hard copies of CVs were physically delivered. Even Helga who had increasingly used ICT for many of her professional tasks and administrative duties (where it was, in fact, required) still preferred the more traditional pen and paper system and conducted a great deal of her work without using technology. The reluctance of these interviewees to extend their use of ICT – particularly the Internet – and thus obtain greater economic benefits may support recent literature indicating that a relatively small percentage of South African female Internet users (22%) were using the platform for work-related purposes (Gillwald et al., 2018). It is noteworthy that the income earners among interviewees who opted to make very little or no use of ICT in their economic-related practices were either involved in informal employment or manual labour. Findings are, therefore, consistent with the literature indicating that women in these positions tend to be less engaged users or less active in using

technological resources for economic benefits (Jiyane & Mostert, 2010; Kwami, 2015; Mapi et al., 2008; Thompson & Paul, 2016).

5.3.6 Educational use

The findings revealed relatively little use of the Internet for activity related to formal education. However, involvement in studies at some stage (whether at secondary or tertiary level) was the central motivating factor for several interviewees' acquiring a computer. Grace – the only participant engaged in formal learning at the time of interview – made some degree of use of the Internet for this purpose and Annie who intended pursuing a tertiary qualification in the near future, foresaw such activity. Despite their intensive use of and affinity for mobile phones, both of these women notably considered the computer as the technology fitting for such learning purposes. This could be viewed as conflicting with literature findings indicating that a substantial number (two-thirds) of women used their mobile phones for 'educational activities and/or searching for information' (Research ICT Africa, 2015). However, the conflict may lie in the survey's combination of these two activities: a) educational activity and b) searching for information. The interviewees considered their mobile phones as the primary device for (informally) searching for information but associated (formal) educational activity with the computer. As previously noted, conducting research on potential learning opportunities (e.g. Annie researching universities) was also done via the Internet, even by way of social media which was generally perceived as an informal platform.

The interviews also suggest that ICT may potentially aid offline learning. In Jasmine's case (no formal education whatsoever) dialling numbers on her mobile phone had led to a higher frequency of interaction with and recognition of numbers, correlating with the findings of Macueve et al. (2009) who noted that such activity could advance numeracy skills. While there is no evidence that the daily use of instant messaging and social media browsing by Diane (little education) had, had any impact on her writing and language ability, this had undoubtedly increased the frequency of her exposure to reading and writing. This may support the claim of Zainudeen and Galpaya (2015) that mobile phones can assist in developing language ability.

While the interviewees may not have significantly capitalised on the educational benefits of ICT for their own gain, the findings indicate that technology was employed in assisting in the learning of children. The findings that relate to Rashieda, who had school-going children, and Diane, who observed her adult daughter's daily interaction with her school-going grandchildren, suggest that mothers personally take responsibility for sourcing information online for assignments on their children's behalf. The literature indicates that 43% of South African women using the Internet were

doing so for educational purposes (the second most commonly used function of the Internet) (Gillwald et al., 2018) and that half of the female Internet users were using the platform to get information for academic purposes or research a topic (Research ICT Africa, 2015). As the survey does not indicate whether such research was for personal gain, it could have been on behalf of others such as their children and thus potentially relate to the interview findings. Furthermore, this empirical finding concurs with the literature which identified assisting children with homework as a function of ICT employed by women and noted that they tend to make use of technology for such productive purposes (Kennedy, 2011; Sylvester, 2016; Thompson & Paul, 2016). In this manner, the Internet had largely replaced the library as an educational resource for mother, Rashieda. This educational research was also done via computer, thus corroborating the perspectives of younger Grace and Annie who associated academic work with computers rather than mobile phones. While not having played such a hands-on role in the learning of her child, one mother, Fiona, contributed towards this purpose financially by purchasing a computer solely for her then teenage daughter to use for educational purposes. Besides the compulsory information seeking for school assignments, participants like Rashieda and Bongiwe had incorporated technology into their children's educational development in more enjoyable and innovative ways. Examples include using downloaded cartoons (in a foreign language, with English subtitles) and mobile educational games to improve reading and numerical ability along with a range of other learning areas and general knowledge. Bongiwe capitalised on the technology in an additionally useful manner to monitor the child's progress in learning.

On the other hand, several interviewees with children of a similar young age as Bongiwe's (around six years old) considered use of ICT in a learning context (non-compulsory at this young stage) to be unnecessary. While there are no discernible socio-demographic factors accounting for these differences, it is worth noting that these women (namely, Iris and Helga) were generally less frequent or engaged ICT users than Rashieda and Bongiwe, for example, who had opted to integrate it into their children's learning, even going beyond mere school requirements and capitalising on the educational benefits of technology in more creative ways. The different perceptions of ICT of these women underlie their different approaches. Bongiwe – who was passionate about technology to the extent of having made it her career and incorporated it into most aspects of her own life – considered it to be such a beneficial learning resource that she had given her six-year-old daughter a mobile phone specifically for this purpose. Beyond social purposes of ICT, Helga and Iris mainly used it when required of them (though Iris had recently begun increasing her range of use after being introduced to additional benefits). These two took the opposite view from Bongiwe's, considering their similarly aged children too young to own a device. This reflects Bongiwe's main perception of

technology as being a resource aligned to important, productive activity such as learning, whereas the others did not immediately associate these tools with such serious activity and were in fact more inclined to view it as a distraction from such priorities. This latter view was one which prior research found to be common among mothers (Zainudeen & Galpaya, 2015).

5.3.7 Mobilisation and expression

Despite increasing awareness of the new avenues of self-expression and exposure to diverse perspectives outside of their own environment and context that ICT affords women (Broadband Commission, 2013; World Bank, 2016), the findings of the study suggest that this function of technology remains relatively underused by interviewees. The respondents' general approach to online engagement, specifically with respect to their behaviour on social media platforms, appeared to be relatively passive in nature and predominantly, if not exclusively, geared towards consuming rather than contributing content or voicing opinions. This supports a range of research indicating that women continue to lag behind and constitute a greater proportion of the digitally excluded demographic as far as contribution, generation and sharing of content is concerned (Roux & Dalvit, 2014; Schradie, 2015; Wilson & Lawan, 2015; World Wide Web Foundation, 2015b). Interviewees who were hesitant to participate more actively in the digital space sometimes attributed this to being a 'private person'. Interestingly, the Research ICT Africa (2015) data revealed that those Internet users in the employment category of doing 'unpaid housework' were more active than others in 'posting and reading' via social networks or blogs. This may appear out of line with this study's findings where housewives like Diane and Eleanor were among the most passive users of social media. However, given that this figure fails to distinguish between consuming (reading) or contributing (posting) content, it may well be that those surveyed were predominantly consuming content, as was the case with housewives in this study. Not only was their social media engagement largely restricted to absorbing content, but it was almost solely with contacts with whom they are personally familiar. Given that this was often people from the same area, ethnicity and cultural background, it restricted opportunities for interaction with people with diverse perspectives, experiences and worldviews. Ironically, even when benefits such as diversity in interactions and greater confidence in self-expression and communication skills were recognised as key advantages of social media (as was mentioned by Helga), this was not sufficient reason to engage in such activity by participants extremely reserved in online behaviour.

This reserved approach was not followed by all interviewees. Young respondents in particular (specifically those in their early twenties) tended to be more actively engaged in contributing content, free in expressing commentary and open to online interactions extending beyond their

immediate circles. For these women, not engaging in such an active manner would remove from the enjoyment they derive from social media applications. As Grace commented, this would be "boring". For several slightly older interviewees (i.e. those in their thirties) social media had been utilised for purposes like engaging in lively debate with strangers on online forums regarding current affairs (Rashieda) or connecting with like-minded individuals on platforms dedicated to a shared goal (Iris). In the case of the latter, Iris may not have been actively expressing opinions but drew valued inspiration from that of others. These findings relate to literature indicating that half of female Internet users reported posting and reading online via a social media channel or blog (Research ICT Africa, 2015) and 41% of South African (male and female) social media users made use of these platforms to learn other people's opinions or share their own experiences (Gillwald et al., 2018). However, as previously explained, it is difficult to gauge from these figures whether women passively acquired information or actively contributed content. It is, however, notable that only 45% of women who used the Internet felt free to post or express their opinions on any issue online (Research ICT Africa, 2015). Such a sense of freedom was certainly not felt by a number of interviewees, most notably Belinda who was very strong in her opposition to online expression. Nevertheless, there were interviewees like Rashieda who, despite her general dislike of Facebook, enjoyed the discussion and debate around current affairs on the platform. This aligns with research which suggested that, to a certain extent, social media was being used for greater societal participation by South African women rather than merely as a social tool (Roux & Dalvit, 2014).

At least two interviewees (Iris and Bongiwe) had considered expanding on their online engagement by actively contributing content of their own via blogs. According to Iris, this would be educational in informing women like those in her community on a topic in which she had expertise. However, it is likely that the primary reason for both of these women creating such online content was in line with their professional goals and for increased exposure. The two women shared certain commonalities in that they were both from Khayelitsha, around the same age, single mothers and entrepreneurs. The latter two characteristics may particularly factor into their considerations to enter into a more active form of digital participation as they were both highly motivated to make a success of their businesses and were willing to explore various means to do so.

Rather than interacting outside of their immediate environments, ICT appeared to be more commonly employed by interviewees as a means of enabling such connections within their respective communities regarding issues pertaining specifically to them. This function was viewed as advantageous by the wider group of participants and capitalised on even by the older women who had no interest in exposure to others outside of their own context or environment. Similarly, prior

research found that one of the most valued functions of the smartphone for women was enabling them to remain informed of what was happening in their local areas (Cowell, 2016). Instant messaging (including the sharing and broadcasting of texts, images, videos and voice notes) was the preferred platform for informing other community members or rallying community engagement regarding pertinent challenges both directly and indirectly affecting them. WhatsApp was considered a primary tool in updating and rallying citizens in response to situations like escalating protests and violence in their immediate areas (frequent occurrences), environmental challenges (the water crisis being a pertinent example), as well as mobilising members of a particular community, organisation or religious or cultural group in support of local or even broader causes (for example notifying and imploring citizens to attend marches or gatherings). While this appeared to occur largely via online channels, offline methods like phone calls were employed for those not using the Internet and word-of-mouth remained a highly significant communicative channel in this regard.

Phone calls and word-of-mouth were precisely how Jasmine remained informed of information relating to the political and civic community organisations in which she was highly involved, attending weekly meetings of each organisation. She described the community organisation as considerably relied upon by citizens in Khayelitsha for a wide range of issues, including assistance in procuring housing, settling disputes and serving as intermediaries between the community members and authorities or institutions. This again brings to mind the reporting of Woolcock (2005, p. 12) that the urban poor are typically "faced with institutions, policies, and services that are frequently hostile, inadequate, or indifferent to their concerns" and "have little choice but to valiantly deploy a range of coping strategies", one of which appears to be the greater reliance on such local organisations. Given the emphasis in literature on the pertinent role ICT can play in enhancing women's participation in public discussion and decision-making processes (World Bank, 2016; World Wide Web Foundation, 2015b), it stands to reason that Jasmine could have most to gain from ICT usage in this regard as the interviewee most invested in citizen participation.

5.3.8 Entertainment

Most participants made some use of ICT for recreational purposes. However, opting to spend free time away from technology remained common among generally limited ICT users as well as some who used ICT extensively for work purposes and lacked interest in technology outside of this space. For the most part, interviewees shared a fondness for older mediums as entertainment. Ten of the 12 women watched television either daily or frequently, even if only for short periods. After tiring days of work and domestic and childcare responsibilities, the television offered a brief form of relaxation for Iris, Helga and Jasmine. The radio was also popular and listened to daily by arguably

the two least active ICT users, Jasmine and Fiona – the latter woman notably doing so on her phone. For several participants, traditional media forms a secondary activity, consistently on in the background while the women are otherwise occupied. It is thus unsurprising that a device such as the radio was described as a non-disruptive medium, able to be used while engaged in other tasks (Asiedu, 2012b). Findings also showed that use of traditional media often co-occurred with use of modern ICT. Free time for Grace, Annie and Charlene was frequently spent divided between these various forms of older and more modern digital devices. In describing the need to keep occupied with multiple devices at the same time, Charlene explained: "I have the tendency that I can't sit still." An impression is left that being restless and fidgety factors into this behaviour.

For young Annie and Grace in particular, social media was the go-to activity for any moment of restlessness, boredom as well as a secondary activity while engaging in something else. Social platforms provided these interviewees with more than social interactions but also various forms of recreational content (including a wealth of audio-visual material). Though not used nearly as intensively, social media was also perceived as recreational in nature by other participants. Older respondents like Diane and Eleanor described Facebook as something to be used while relaxing in the evening. Bongiwe derived a bit of enjoyment from gossip on Twitter and occasionally browsed topics of interest on Pinterest. Given the much broader scope of use and benefits derived from social media than merely a platform for social interaction, these findings bring to mind the prior discussion as to what constitutes 'entertainment' activity and concur with literature which proposed that females were deriving entertainment value from the social networking activities they frequently engage in (Soh et al., 2013).

Ten of the 12 interviewees used their mobile phones to take photos or videos and this is a highly enjoyed and valued function of the device for most of these women. Sending and receiving such content with friends is common, however, for several participants this material is viewed as for personal consumption only. Diane was one such respondent and explained: "I leave it in the Gallery […] then if I want to then I just pass – go to in the Gallery and then I can look at the pictures. Ja, it's just for me." While some interviewees (for example, Diane, Charlene and Rashieda) valued this form of mobile activity as a means of storing memories, for younger Annie and Grace, the sharing function is particularly important. Annie and Grace are the only two who make frequent use of photo-editing mobile applications.

Several interviewees streamed online content for their personal enjoyment. Charlene had developed a taste for this since discovering this was possible on the bigger screen of her smart television. Screen size also factored into other participants' digital decisions. Consuming audio-visual content is one of

few activities where respondents generally opted for computers or televisions rather than their mobile phones. Grace, for example, preferred the household computer for this purpose, whereas this screen is believed too large for her social media activity as it is considered private. Another interviewee who deserves particular mention in the context of consuming multimedia on a computer is Rashieda. This was her main pastime and sole use of her laptop at the time of interview. She illegally downloaded movies, television series and/or music videos on a daily basis. Watching this downloaded material was her family's preferred activity when spending time together. Despite being the most vocal in her opposition to American media, Rashieda also seemingly consumed the most American television and film content of all the interviewees.

Eight of the 12 respondents occasionally played games on a computer or mobile device. For many this tends to be infrequently or to pass the time during tedious activity like standing in queues. Playing offline games is particularly noteworthy in the cases of older, retired participants, Eleanor and Diane, as this was their sole use of the computer. The only other notable use of ICT for recreational purposes was Charlene's long-time hobby of scrapbooking ideas. She adapted her means of finding, collecting and storing information related to her various interests from offline channels to the Internet and her computer.

5.4 INFLUENCING FACTORS IN THE ACCESS AND USE OF ICT

The following discussion encapsulates a wide range of the factors underlying the ICT access and usage of the interviewees. It examines impacts these factors have on various respondents and the conditions under which they may either impede or motivate digital engagement.

5.4.1 Affordability of ICT

The average individual monthly income (including salaries and transfer income) for people in the three marginalised areas in question was reported to be: R2 335.45 in Khayelitsha; R2 524.96 in Mitchells Plain and; R3 589.74 in Saldanha Bay (Research ICT Africa, 2015). Given the strong correlation between income and digital participation due to the challenge of ICT expenses (Alliance for Affordable Internet, 2016; Cohen et al., 2018; Gillwald et al., 2018), it was expected that affordability would strongly influence the ICT usage of women in these areas. This was found to be true among interviewees, though affordability did not play a significant role in the ICT usage of all participants. The diversity in the financial standing of women within such marginalised communities was reflected among the respondents. While most lived modestly with limited financial means, there were exceptions. In the notable case of Charlene (from Saldanha Bay), her ICT behaviour is clearly

related to her comfortable and sound financial standing: compared to other interviewees she owned more devices including more sophisticated technology, spent excessively more on her monthly digital expenses and frequently engaged in data-intensive activity without reservation. Her view that Wi-Fi connectivity was available "at a reasonable price now" was far removed from that of other respondents and clearly indicated that ICT costs had no bearing on her activity. Interestingly, the only other interviewee to have no qualms about the costs involved in ICT usage was at the opposite end of the spectrum in terms of both income and digital participation. Jasmine survived on extremely limited financial means and had the narrowest range of ICT engagement of all interviewees. The miniscule amount spent on her minimal digital activity – which she felt was sufficient – left her feeling unaffected by an affordability barrier.

However, these women were the exception rather than the norm as ICT costs influenced the engagement of all other interviewees to some extent and nearly all claimed that they would be more active were it more affordable. The bulk of respondents are thus typical of the reporting of a wealth of literature emphasising the role of costs as a constraining factor for women's digital participation (Abraham, 2009; Comfort & Dada, 2009; De Lanerolle, 2012; Deen-Swarray et al., 2013; GSMA Connected Women, 2018; Intel, 2012; Munyua, 2009; Rey-moreno et al., 2016; Roux & Dalvit, 2014; Wilson & Lawan, 2015; World Wide Web Foundation, 2015b).

Affordability appeared to become more of a barrier once actually becoming digitally engaged. Research showed that costs were the least significant barrier to Internet activity for non-users (Research ICT Africa, 2015), while a substantial – if not most significant – factor in limiting the Internet usage of existing users (Gillwald et al., 2018; Research ICT Africa, 2015). In this study, this was an especially significant barrier for more digitally active participants who may not limit the frequency of using devices and platforms but practise a greater degree of caution in engaging in data-intensive (and therefore more costly) activity. Self-employed respondents like Bongiwe and Iris reported that the underlying costs of ICT usage prevented them from fully capitalising on the wealth of digital opportunities to advance their small businesses. The literature indicates that even when more obvious affordability challenges are overcome (i.e. owning a device and affording some data), the cost of capitalising on more sophisticated applications and services limits the greater transformational and empowering benefits of technology (Deen-Swarray et al., 2013). The cases of Bongiwe and Iris are in line with the literature which reports that a striking 87% of self-employed women surveyed limited their online activity due to high Internet expenses (Research ICT Africa, 2015). Furthermore, the two women's single-parent status may also be relevant considering research

indicating that single-parent, female-headed households are reportedly most affected by the high costs of connecting to the Internet (Alliance for Affordable Internet, 2016).

ICT costs also factored into the usage of housewives, retirees and unemployed respondents who limited (often already infrequent) activity like Internet browsing, streaming, downloading as well as making phone calls. Nearly two-thirds of women in the Research ICT Africa (2015) study were in fact found to practise restraint in making phone calls due to the expense. The 'missed call' and the 'please call me' had become a core part of the digital communication process of Jasmine and her social circle. Literature attributed the popularity of these features as directly due to the affordability challenge (Abraham, 2009; De Silva et al., 2012; Deen-Swarray et al., 2013).

The cases of newly unemployed interviewees (recently retrenched Fiona and resigned Rashieda) provide pertinent perspective into the impact of income in ICT usage. These women were forced to adapt their behaviour in ways like cutting back on their data expenditure and abandoning a data contract in favour of prepaid spending. Rashieda described the greater impact of costs on her digital behaviour after resigning from her job as "a massive change". There was one notable point of consensus among women where even those who otherwise considered ICT expenses to be exorbitant perceived the technology as affordable and within their means, namely instant messaging. WhatsApp was greatly revered by users, particularly the unemployed respondents, for its cost-effectiveness. This single application appeared to substantially ease cost concerns, particularly for those like Fiona who made no use of the Internet outside of this platform.

The cost barrier was also a prominent reason for several interviewees delaying purchases of mobile phones when their existing devices were faulty or lost, thereby either spending periods without a device or enduring poorly functioning technology which restricted their activity. Though one of the least significant barriers, broken phones was reported as a reason for women not owning a device in prior studies (Deen-Swarray et al., 2013; Research ICT Africa, 2015; Zainudeen & Galpaya, 2015). On the other hand, expense never deterred financially struggling Jasmine who repeatedly opted to purchase mobile devices on credit rather than going without. Jasmine's determination to remain in possession of a device and ensure she had a phone regardless of her financial struggles, may provide insight into why costs were reported to be the least significant reason for women not owning a mobile phone according to Research ICT Africa (2015). Her reliance on the device essentially outweighed the burden of having to use her limited financial means to pay for it. Furthermore, these devices may be somewhat affordable in these areas given Bongiwe's explanation that costs had become less relevant to phone ownership – and smartphone ownership – in Khayelitsha "especially now that this smartphones are very affordable". Nonetheless, costs should still be viewed as relevant

to South African women considering recent GSMA (2018) findings that affordability of a handset and/or credit costs were the greatest barrier to mobile ownership for this demographic. Based on interviews, expense may pose a greater threat to ownership of other technology, specifically computers. This was the reason Belinda did not own such a machine despite wanting one. The expense of computers was also referred to by Khayelitsha respondents in explaining the low levels of computer ownership in the area.

Despite the struggle with costs, all of the participants felt that the benefits of their mobile phones – be it for minor or more advanced purposes – outweighed the issue of expense and tended to ensure their devices were loaded with data or credit (however small the amount). As such, many interviewees had at a stage made certain sacrifices and allocated money intended for other purposes towards ICT expenses. This corresponds with other South African research which revealed either substantial sacrifices made or overspending in effort to remain in possession of a phone with credit (Rey-moreno et al., 2016; Research ICT Africa, 2015). Such sacrifices may be small in nature (for example, Iris opting to forego a cup of coffee to purchase data), however, it is a matter of concern that Eleanor and Rashieda described community members as forgoing necessities in order to be connected.

5.4.2 Ability and confidence

The interview findings allude to a wide spectrum of digital ability and confidence among participants. Several interviewees – specifically Grace, Bongiwe and Rashieda – considered themselves to be competent and capable users and expressed confidence in their ability. These women had generally interacted with a wider range of digital applications and programs than other interviewees and either worked extensively with technology in their occupations or had undergone some form of digital training. For the most part, however, the findings correspond with literature identifying digital skills as a crucial barrier to digital participation by women (Deen-Swarray et al., 2013; GSMA, 2015; IGMENA, 2016; World Wide Web Foundation, 2015b). A lack of ability and/or lack of confidence in ability was apparent among most interviewees and arguably the greatest inhibiting factor to increased engagement. This was true of participants across the range of socio-demographic variables, including age, education and employment.

Almost all interviewees attributed their lack of participation in various ICT activities to lack of knowledge as to how to do so. It was only the degree to which women considered themselves incapable and the activities they limited themselves to which differed. Some struggled with tasks like downloading, Internet banking or somewhat more advanced features of computer software, while

others lacked any understanding of how to access the Internet or what the various icons on their phones represent. On the more extreme end, one interviewee (Jasmine) was unable to perform any digital activity beyond making and receiving a phone call and taking a photo or video. These differences between participants, however, bear no weight on the fact that lack of know-how by most of the women was accompanied by a lack of confidence, a sense of fear and a cautious hesitation in performing certain activities, specifically venturing into any unfamiliar digital territory. When any such activity was encountered, most respondents described their experiences with language reflecting fear and caution including: "I feel a bit scared", "I'm thinking I better be careful" and "I don't know what to do and if I do, then it's going to be trouble. So, I leave it now." The last extract (Diane) is particularly significant in revealing how fear of somehow damaging the device (in this instance, a computer) restricts the activity performed on it. This is directly in line with the findings of Zainudeen and Galpaya (2015) who reported significant insecurity in usage among women who feared breaking their own mobile devices and consequently limited their activity. In the previous example of Diane, fear of breaking the machine was probably exacerbated by the fact that the computer belonged to her husband. Another interviewee, Belinda, described her anxiety about using ICT as being due to a "fear of the unknown" and described the prospect of going for training as taking a great deal of "courage".

Hesitation was also evident among some very digitally engaged participants. Such insecurities hinder branching out into what would be personally beneficial digital activity. Lack of ability also affects the manner in which digital tasks are performed. This was evident in the case of Iris, who had frequented the local e-centre for years despite personally owning the necessary equipment, reportedly due to an inability and lack of confidence to engage with her own machinery. Charlene is a particularly interesting case in the skills barrier discussion. One of the most frequent and avid ICT users in the study, she attributed her restricted range of engagement solely to a lack of knowledge. Her response to the prospect of using social media platforms other than Facebook for example was "No, I'm not that clever", revealing that she was intimidated by such technologies and her belief that she lacked the skills required to engage. The accuracy of this belief is doubtful given her substantial and confident interaction with the social media application she was using. Her long-term use of Facebook (as a very early adopter) had probably resulted in her taking her existing skills for granted and she appeared to perceive newer technological applications as more advanced.

Charlene's case also alludes to the problem surrounding the understanding of transferable skills. There is a seeming failure to perceive a skillset on one platform as sufficient to engage on a similar one. An underestimation of ability appears more plausible than actual lack of ability. This resonates

with the discussion by Helsper (2008) and Robinson et al. (2015), for example, that emphasises the negative influence of poor self-perceived abilities or self-efficacy regardless of the actual skills possessed, as well as the pertinent role of such perceptions and lack of confidence in limiting the use of ICT. This may also underlie the low level of uptake of certain online opportunities like financial or government services which would be highly beneficial to women. It is worth highlighting that interviewees like Diane and Fiona, with limited Internet engagement, expressed an interest in information-retrieval but did not engage in it because they believed that they were unable to do so. This correlates with the findings of Hargittai and Shafer (2006) who concluded that women's perceived lack of ability is particularly related to information-retrieval and navigating content online. This is especially concerning given the integral role of information-retrieval in accessing the broader economic and educational benefits of ICT.

In contrast to Diane and Fiona, Iris searched for information on a wide range of topics across multiple platforms daily. Yet she lacked the confidence to source information – on a topic in which she personally had great expertise – for the blog she intended to create and had requested her boyfriend (with seemingly little knowledge on the subject) to do so on her behalf. This appears similar to the example described by Thompson and Paul (2016) where a woman, who was an information technology professional, felt more comfortable delegating tasks involving online information gathering to her husband. Iris clearly had some confidence in her ability to retrieve information online as she frequently did so for her personal consumption. However, it seems that her level of confidence was insufficient for her to perform this activity independently for what she considered the more important purpose of sharing with a wider audience. This then also speaks to an issue of self-perceived rather than real lack of ability and again supports literature associating this particularly with information-retrieval and navigating content online (Hargittai & Shafer, 2006). Poor self-perceived ability may also be accompanied by negative self-talk as was the case with Charlene who referred to herself as "useless" and "stupid" with regard to using certain technology, which likely only served to reinforce her underestimation of skills.

Though participants mainly discussed lack of ability in the context of computers, it extended to using their mobile phones. Several avid and early ICT adopters described the lack of knowledge of devices as "basically the same" and admitted that a lack of ability prevented them from moving beyond the relatively narrow scope of mobile applications currently used. Given the frustration and annoyance of being constrained due to a perceived limited skillset, at least one respondent described using self-denial as a coping mechanism to avoid such negative feelings. Annie acknowledged: "I make myself believe I'm okay but sometimes I get annoyed" and explained a tendency to "ignore" what she did

not understand. In the case of 19 year-old Annie, it is worth reflecting on the writing of Hargittai (2010, p. 92) who stated: "People who have grown up with digital media are often assumed to be universally savvy with information and communication technologies. Such assumptions are rarely grounded in empirical evidence, however." Similarly, formal employment – particularly administrative work – is often said to allow greater opportunity to experiment with technology and develop ICT skills (Schmidt & Stork, 2008; Thompson & Paul, 2016; Wasserman & Richmond-Abbott, 2005). Yet confidence in ability was not the outcome for Charlene, who spent many years employed full-time in a largely administrative position. The interview findings thus again suggest that lack of skills is relevant across the range of socio-demographic variables.

These findings are thus compelling in implicating lack of digital ability to be critical to interviewees' patterns of ICT engagement in abstaining from interactions with certain devices (i.e. computers) and constraining the online activity of Internet users. Literature has also identified lack of skills to be fundamental to women's non-use of the Internet and in multiple studies (across a range of African and other developing countries) this was found to be the single most significant barrier in keeping women offline (outweighing even costs) (Deen-Swarray et al., 2013; World Wide Web Foundation, 2015b). On the other hand, the Research ICT Africa (2015) research (conducted in the specific three areas also under investigation in this study) found that 'I don't know how to use it' was less significant among women not using the Internet, and that other reasons applied more strongly to these non-users. This was the case in this study with non-user Jasmine.

5.4.3 Digital adoption and the ecosystem

- ***The approach to learning***

An important aspect of discussion in the ICT usage of women – and one closely connected to the issue of skills – is the manner in which the adoption of technology occurs. Most interviewees seemed to subscribe to a shared view that broadening their range of digital interaction must happen under the guidance of someone more knowledgeable, be it via informal demonstration or more formal training setting. This belief was accompanied by a reluctance to experiment with technology independently and an unwillingness to venture beyond the familiar platforms to which they were already accustomed. Previous research had noted that the degree of helplessness felt by middle-aged and elderly women when confronted with the task of learning basic computer skills alone was concerning (Lin, Tang, & Kuo, 2012). A similar sentiment was evident among participants who had never used an online search engine and refused any attempt at such activity without sufficient prior instruction, stating: "They must first show me how […] I don't actually scratch in phones" (Diane)

and; “I’m not going on my own” (Fiona). Even among several more active ICT users, a pattern emerged in their need to first be instructed, allowed time to process and internalise the new information by memorising or taking notes and only then practicing and performing the action independently. Great emphasis was placed on this initial instruction before attempting the activity unaccompanied. Charlene explained:

> I like if somebody tells me […] show me but let me just make a note so I can do it on my own and refer to my notes rather. Because a lot of things that I’ve learned on the computer, I used to − okay, show me, right and let me make a few points about it […] I made notes for myself and eventually I could do it on my own because I got used to doing it.

Such a cautious learning approach is particularly adopted when tasks are considered important. Helga, for example, relied on someone else’s expertise to ensure her work task was correctly completed while attempting a separate ‘practice’ round on her own as potential mistakes had no consequences. Though relying on others, both Helga and Charlene ultimately made concerted efforts to internalise the teachings in order to perform the activity on their own later. However, even in the cases of these interviewees and certainly among those less engaged, there was a tendency not to stray beyond the specific application taught or take initiative to explore further independently – a phenomenon similar to the behaviour of women reported in literature (Zainudeen & Galpaya, 2015).

An independent, self-learning, explorative approach to engaging with ICT was generally only evident with a few of the most advanced and avid users (specifically Grace, Bongiwe and Rashieda). Narratives of these participants showed that they were drawn to challenge, discovering new aspects of technology and often took the initiative to do so (unlike the previously discussed respondents). These interviewees also tended to be those who had previously undergone training and/or had greater exposure to working extensively with technology. Despite training, it appeared to be the years of self-learning and exploring that most of their current knowledge was acquired and where confidence in their own capacity to develop skills independently was gained. Even within the process of formal training, these respondents preferred a component of self-learning and independent exploration rather than constant monitoring by an instructor, as was preferred by a less confident participant like Iris. The difference in approach to ICT adoption is particularly interesting in comparing the youngest two interviewees, who were similar in age, life-stage, personal interests and even the purposes for which ICT was used. However, unlike Annie, Grace welcomed new technology, preferred experimenting on her own and was confident of her ability. This was probably because she did computer training while at secondary school which gave her a solid foundation, both in skills and confidence, which Annie – with no training or meaningful interaction with computers – did not have.

Apart from the four respondents who had, had some formal digital training, there was a perception among several other participants (for example Charlene, Belinda and Annie) that formal training was important, if not essential, to improving ability. For those who had completed such learning, the impact was significant – not only in improving knowledge and ability but also in instilling and reinforcing confidence – and, for Iris in particular, drastically changing their views of ICT which were largely negative before the instruction.

- ***The social circle and the source of support***

The Research ICT Africa (2015) study revealed that the degree to which women's social circles engaged in ICT activity influenced their own digital choices: more than half of women who made no use of the Internet referred to a similar lack of activity by their friends. Each interviewee typically had a diverse social circle where ICT engagement and competency was concerned, consisting of reportedly both very digitally active and very limited ICT users. Though not related to the Internet per se, the case of Jasmine may be relevant here. Given the low level of uptake of computers among her network of friends, family and community in general, it seems to have become the norm in this circle that computers are generally out of place in their environment. On the other hand, Jasmine's high dependence on her phone was mainly due to the extent in which it was deeply embedded within this circle.

Given the high level of significance which most interviews placed on receiving instruction, attention must be paid to the supplier of such assistance. The formal trainer can clearly not be discounted as an important source of learning. However, it is clear from interviews that informal knowledge transferral was far more common. The most significant sources of instruction, guidance as well as general influence in terms of digital engagement were immediate family members, namely children, grandchildren, siblings and spouses. Children and often older grandchildren provide most of the digital assistance needed in the case of many of the respondents. This was particularly the case with interviewees aged 50 years and above, all of whom shared a home with one or more adult children and in most cases grandchildren. However, children also featured as far as some younger and more digitally competent participants were concerned. This was the case with Rashieda who considered her young son – described as a "genius" with ICT – to be the only genuinely competent ICT user in her family and friendship network. However, his influence was in motivating Rashieda to be knowledgeable rather than assisting her to learn. She did not want to appear incompetent or feel embarrassed in front of him. Maintaining a reputation for being digitally competent was important to her. Rashieda, along with most interviewees who were married or in a relationship, did not often look to their husbands and partners for ICT assistance. This was particularly evident in the case of the

two older respondents who appeared to rarely request the help of their husbands. Two of the younger married women (namely, Belinda and Helga), however, often sought the help of their spouses when it was required. For a few younger interviewees (aged 19-34 years), adult siblings were a source of digital assistance. One of these women (Bongiwe), had older siblings in IT careers who aroused her interest in technology and influenced her decision to pursue a career along a similar path. Finally, despite having very little digital engagement themselves, the parents of some more digitally active interviewees may have had considerable roles in their daughters' digital competence and confidence by creating an environment which was conducive to their learning and their development in general. This was through funding necessary resources and/or encouraging and instilling them with confidence to pursue their interests.

Participants were also instructed and often indirectly influenced or swayed to become digitally active by friends and colleagues. Twenty-one-year-old Grace's group of digitally active female friends formed a central support system for one another. They provided assistance and Grace's interest in adopting new applications was stimulated by the technology becoming popular with this group. Iris enrolled in training after being made aware of the programme and being persuaded to do so by a friend. For small business owner, Bongiwe, a network of likeminded individuals and entrepreneurs connected to a local business hub offered a useful resource when necessary. Jasmine's only exposure to a computer was via the daughter of an acquaintance in the area. Friends or colleagues encouraged the interviewees to be more active in instant messaging, engage in more information seeking, explore more online content or participate in new digital activities (particularly social networking). Charlene opened a Facebook account after a colleague suggested "let's play a game". The fact that she felt that she lacked the intelligence to engage in other social media applications may support the notion that having ICT introduced in a simplistic manner as an innocuous or fun activity through informal, comfortable relationships may reduce anxiety and perceptions of technology as technical and complex.

Many interviewees themselves influenced others to engage in digital activities. This was particularly evident among the more competent and avid users who were the core support for their less capable family members (most often parents, but also children and even largely digitally excluded adult siblings). Participants, like Rashieda and Bongiwe, who are mothers, considered it vital that their children be digitally competent and they made an effort to relay their own knowledge to them. Aside from family members, certain respondents also held a level of influence over others. Bongiwe, for example, attempted to have an impact on local youth in Khayelitsha by promoting IT as a career path and Helga directed the parents of her learners towards various digital channels, which some had not

been exposed to. On the other hand, Helga also attempted to sway others from using digital platforms, which they seemingly find useful but which she personally disliked.

- ***The learning environment***

While it is clear that interviewees' familial and social circles were instrumental in their learning and ICT usage (particularly due to the general reluctance to self-learning), the attitudes of the members of these social circles had a tremendous effect on the actions and digital development of the women, as well as women in prior studies (Liff & Shepherd, 2004; Lin et al., 2012). For some, the learning-environment created by these sources of assistance proved counterproductive. This was true of Charlene and Annie, who relied on assistance from male family members. They were usually met with impatient, hostile attitudes along with a host of insults related to their intelligence. As a result, Annie tended to largely refrain from requesting assistance. Charlene on the other hand, had resorted to a strategy of 'playing dumb' or feigning ignorance to get the men to perform the task on her behalf rather than requesting they teach her and subjecting herself to further insults. In effect, this prevented both women from learning. Thompson and Paul (2016) reported that having strong social networks may have an adverse effect on women's digital interaction in instances where they have opted to rely on others to undertake ICT tasks on their behalf. Furthermore, it is likely that repeatedly being called "stupid" by her supposed support system contributed to Charlene's own self-perception as being incompetent, which hindered her attempts at independent learning. These findings correlate with prior research which reported that while family members were often assumed to be the main source of help for women, they were in fact hidden obstacles to ICT learning, by ignoring women's attempts to learn and providing little assistance (Lin et al., 2012).

Patience and positive, agreeable attitudes appear critical for learning. The literature also emphasises the importance of a supportive environment, sympathetic understanding and encouragement in successfully acquiring digital skills (Intel, 2012; Liff & Shepherd, 2004; Lin et al., 2012). It is significant that Charlene viewed her colleague's knowledge as a direct result of having a patient and willing support system. Multiple other interviewees also experienced impatience or reluctance to assist by family members who should ideally constitute a support system. This was particularly constraining in the case of some older participants whose skill levels were limited and required more assistance, yet they faced resistance, reluctance or discouragement by family members despite requests to be instructed. Lin et al. (2012) had noted that the absence of support and assistance from family members was particularly constraining for middle-aged and elderly women given that they already had low self-efficacy and little confidence. A perception that emerged during interviews is that ICT is somehow unnecessary or inappropriate for older women. This was revealed in how some older

interviewees described the treatment they received from their children, grandchildren and in certain cases even their husbands. It also emerged in the narratives of some younger interviewees. Older respondents themselves may have internalised this perspective to a certain degree, as appeared to be the case with Fiona and Jasmine. These perceptions of ICT being inappropriate and unnecessary for older women evidently only related to ownership and use of certain technology – most notably the use of social media but also other recreational uses of ICT and ownership of computers or newer, sophisticated smartphones.

For the most part however, reluctance to assist participants appears to stem from unwillingness to spend the necessary time to teach as the learning pace of some women was believed to be slow, and therefore requiring repeated instruction. Though this impatience and reluctance was evident among female instructors as well – as was acknowledged by Grace in her approach to teaching her mother – it was most commonly attributed to men (including sons, brothers, grandsons, husbands and male partners). Belinda described her observations of this phenomenon in men: "[T]hey would have the patience [to show you] for that time but ask them after that [then they don't want to show you]." It is also important to note that this impatience did not always take the form of direct refusal to assist or hostile and rude attitudes while doing so. In certain cases it was a more subtle discouragement, as in the case of Grace, knowing that this would probably be enough to keep her mother from moving from general mentions of interest in learning, to direct requests for instruction. The approach of the instructor is critical to learning outside of the familial and social circle as well, as is evident in the experience of Belinda who abandoned her ICT training programme because of the reportedly unpleasant and condescending attitude of the trainer. On the other hand, while most of these participants' digital advancement was impeded by the negative treatment of others, for Rashieda being mocked, belittled and undermined had the opposite effect. It ultimately strengthened her conviction to advance herself. This case is, however, clearly the exception rather than the norm. None of the negative experiences of any of the interviewees (be it with respect to a formal trainer or family member) appeared to have affected their view and interest in ICT itself.

As is clear at this stage of discussion, many of the digital tasks the interviewees wanted to do were performed on their behalf. This accords with the literature (Jiyane & Mostert, 2010; Zainudeen & Galpaya, 2015), which reveals a dependence by women on others due to a significant (real or perceived) lack of digital skills and a resultant insecurity. While this is seemingly often due to impatience on the part of family members, it may also be marked by genuinely well-meaning intentions in the belief that one is in fact helping the less able individual. There was an interesting difference between Bongiwe and Rashieda in their approach to assisting their teenage children.

Despite both being committed and willing to do what they could to support their children's education – one had opted to ensure her son was self-sufficient to use technology in his assignments, while the other continued to do the required online assignments on her daughter's behalf. What is clear is that support circles play key roles in all of the interviewees' ICT engagement, be it by performing functions on their behalf, indirectly influencing their usage, or directly teaching them.

5.4.4 Interest in using ICT

All interviewees showed great interest in at least some level of ICT engagement, even if only for the most basic communicative purposes. Most of those with limited range of use were curious about the greater possibilities and benefits and more intensive users were interested in improving on their knowledge and increasing their range of activity. Six of the 12 interviewees for example expressed interest in undertaking formal training. The appeal to expand engagement typically stemmed from the benefits of ICT which they had heard about and believed might be of benefit to them, either within a personal or professional context. For younger interviewees, remaining updated or knowledgeable on socially-oriented digital platforms and trends was considered important in keeping on par with their social circles.

While there was generally significant interest in ICT usage among interviewees, there were also clear examples of a lack of interest. This seemed to stem from a belief that either a particular device or an activity beyond the basic communicative functions of a mobile phone was irrelevant to the individual's daily life. Additionally, there appeared to be a mismatch between the way in which a few of the respondents self-identified and their perceptions of ICT where the two were considered incompatible. This perceived clash – which could be considered a mental hurdle – was deeply embedded for some and the primary factor inhibiting ICT usage for at least one interviewee. Eleanor had a relatively sufficient level of access to the necessary digital resources, was aware of opportunities and potential benefits afforded by them, had an enabling support system and reportedly possessed no fear of engaging with technology, yet remained steadfast in her position: "[T]hat is not my life." Her opposition to ICT could be interpreted or framed within the following premise put forth by Mapi et al. (2008, pp. 83-84):

> In most cases people from marginalised communities prefer to live life traditionally in the way they have been used to. They do not accept change easily. In the perception of some community members, the introduction of technology has never seemed appropriate to the traditional way of life.

In keeping with this resistance, Eleanor had a tendency to mentally disengage or distance herself at times when the subject of ICT was broached (both in conversation with her husband as well as during

the interview itself), even when digital channels which she frequently used were mentioned. This was reflected in her haste to declare "I'm not addicted to Facebook" upon the mere mention of the application. This created the impression that she would rather not be perceived as an avid user or be closely associated with such activity. Eleanor did, however, express interest in potentially engaging in one additional online activity, namely Internet banking, though seemingly misunderstanding the purpose and benefit of the platform. Nevertheless, her motivation for wanting to engage in it – to assist in the running of her small house-shop – may provide insight into how her interest in ICT and thereby her usage may be piqued. While increasing her ICT activity for leisurely purposes had been unsuccessful (in the instance of her friend's suggestion of accessing gospel music online), appealing to her economic ambitions and specific ways in which ICT may be helpful in this respect may prove more effective in arousing her interest and changing her perception of technology as incompatible with her way of life. This was in fact the case with Iris, now an avid ICT user, who up until recently lacked interest in technology. However, upon starting her business, any possible assistance ICT could offer to growing the business was enough to not only arouse her interest, but also to persuade her to enrol in a training programme tailored specifically for this purpose. Though significantly affecting her view and use of ICT in the professional context, it had not increased her interest or use of it in other areas of life. Her use of digital platforms for social purposes post-training remained minimal. Ultimately, the exposure to and increased use of ICT (in a professional context) served to significantly change her previously negative attitude towards technology. This thus supports the literature which reported that the more people use ICT, the more positively they view it and the more useful they consider it; on the other hand, less familiarity generally resulted in less appreciation for its benefits (Broos, 2005; Huyer et al., 2005).

Unlike Internet users who lacked interest in furthering their online usage, another example of this barrier was the case of Jasmine – a woman demonstrating no interest in using the Internet whatsoever. Jasmine notably did express interest in two specific additional forms of digital participation: advancing to a touch-screen smartphone and using a computer. The enthusiasm for the former was not rooted in a need to increase her range of digital activity and gain additional benefits but rather in a need to give the appearance of keeping pace with advancements such as touchscreen devices. This move was essentially futile, given that there was no intention to use the device to increase its impact. Her stance on using the device in any additional capacity or connecting to the Internet was: "I don't want to [do] anymore". Given this, Jasmine's interest in using a computer may be surprising. This came after having observed someone write her a CD-R consisting of music of her choice. This example, in addition to Eleanor's interest in Internet banking and Iris's interest in using ICT in her business functions supported the basic argument that it is not a lack of

interest, but a failure to see the relevance and usefulness of technology that limits women's digital engagement. Smith (2014) stressed that ICT adoption is dependent on the direct relevance of ICT to women's daily lives and basic needs while Lin et al. (2012, p. 85) advised: "To effectively introduce computing skills to nonusers, a connection needs to be made between ICT and people's lives. In addition, the motivation of the target group needs to be defined." A wide range of research found that failing to see the personal relevance or need prevented existing Internet users from increasing their engagement, and affected non-users (like Jasmine), who do not connect whatsoever (Correa & Pavez, 2016; GSMA Connected Women, 2018; Intel, 2012; Kapoor, 2016; Research ICT Africa, 2015; World Wide Web Foundation, 2015b). The degree of significance of this barrier varied between these studies. However, it is clear that the perceptions 'no need' and 'no relevance' continue to factor into women's lack of ICT activity.

Additionally, Jasmine's lack of schooling aligns with findings that a lack of interest in the Internet is more prevalent among less educated non-users (Research ICT Africa, 2015). It is also worth considering that unlike those like Eleanor for whom lack of interest (or perceived irrelevance) and a generally negative attitude towards ICT (perceived incompatibility between technology and her life) was a primary barrier, Jasmine was also influenced by both lack of awareness *and* illiteracy. Therefore, it is probably not surprising that her main interest in additional digital participation (acquiring a touchscreen phone) is one which does not require a greater level of reading and writing.

5.4.5 Awareness of ICT

The interview findings revealed that some participants lacked awareness of ICT, ranging from limited knowledge of the possibilities and benefits of the Internet among users to a seeming lack of awareness of even basic functions of ICT among Internet non-users. Jasmine is the quintessential example of the latter more severe case. Apart from being unfamiliar with certain highly popular digital terms (e.g. Google), she had misperceptions of the nature of other common platforms and concepts like Wi-Fi, social media and instant messaging applications, believing most of these terms to refer to "games". Zainudeen and Galpaya (2015) reported that many women do not understand what such mobile applications are used for. Research has emphasised that the large percentage of women who remain offline lack awareness of the Internet (De Lanerolle, 2012; Deen-Swarray et al., 2013; GSMA Connected Women, 2018; Intel, 2012). The Research ICT Africa (2015) study found it the most significant reason for women never having been online.

Lack of awareness has also limited the benefits of technology for Internet users. Up until very shortly before her interview, Iris had been oblivious to the wide range of digital opportunities that she could

use to advance her business. Belinda had only heard of many very basic Internet features which would be beneficial to her as a creative individual and community worker during the interview, making repeated statements like: "You know, now that you're talking about it, I never even thought about that". This relates to the literature which indicated that even women with Internet access were unaware of its potential beyond common and familiar platforms such as Facebook and YouTube (Intel, 2012). Whether Belinda would actively follow up and capitalise on this new information is unclear. However, the impact of raising appropriate awareness was most evident in the case of Iris. When she heard about the opportunity to advance her business using ICT, she immediately took action, enrolled for training and became an avid user. The reason for her transformation was that the information she received (in other words, newfound awareness) was not vague, but clearly stated the ways that ICT could be beneficial specifically to her, in her context as a new entrepreneur. The findings of this study thus suggest that the barrier of awareness is intertwined with an interest in using ICT (and perceived relevance of doing so). This concurs with reports suggesting that a lack of perceived value accompanied by a general lack of interest in the use of ICT is strongly correlated with a lack of awareness of the potential benefits (The Economist Intelligence Unit, 2013). The appropriate awareness led to Iris seeing value and relevance and becoming interested. Additionally, the information relayed to her was accompanied by direct demonstration of the applications and features useful specifically in her context, allowing her to see the advantages first-hand. On the other hand, many interviewees with rudimentary ICT engagement had heard of certain digital activities in passing conversation only and were then left to their own devices. Awareness on its own was not sufficient to get them to participate.

5.4.6 Availability of time for ICT usage

As reported in a great deal of the literature, free time is often a luxury lacked by women in particular (Gill et al., 2010; OECD, 2014; Pankan & Radhakrishnan, 2016). For all their diversity, the interviewees were all primarily (if not solely) responsible for daily household labour and caregiving. They were aware of the fact that this was a role assigned to them as females that is not generally expected of men. Though this gender norm remains, there is a significant movement of women from the household to the workplace. However, this transition has only served to increase their workload as many now maintain fulltime jobs in addition to fulfilling traditional domestic and childcare responsibilities (Pankan & Radhakrishnan, 2016).

Interviewees across the age spectrum observed a generational difference in women's responsibilities and as a result, their time. The younger respondents used their mothers as a measure of comparison, noting that while this older generation of females carried a great deal of responsibility this was

generally not compounded by employment. Older interviewees described the changing culture and the additional burden they witnessed being placed on younger females, including their daughters. In describing this, Diane referred to her employed daughter returning home after work only to begin her so-called "second job". Interviewees in Saldanha Bay also lamented the role reversal they had observed in the community: females were not only expected to join their male partners in contributing to income but were often relied on by men to be the sole earners, all the while maintaining their domestic and caregiving duties. Older participants in particular appeared to disapprove of such cultural changes or as Diane referred to it, these "new things".

Gender norms dictating female responsibilities affected the interviewees and consequently their time to varying degrees. The most affected in this regard was Helga, for whom lack of time was the greatest challenge to more frequent and substantial ICT engagement. This was due to a number of interacting factors – the combination of which was not applicable to any other interviewee – namely: a) being married; b) having young children; c) being employed full-time – in a position which required relatively little ICT interaction; d) residing in a nuclear family household (thereby lacking the support available to many other interviewees living in extended family households, which often house another adult female) and; e) both her and her husband having been raised within a cultural context – in their case a Xhosa community – with strict, firmly entrenched traditional gender norms, which her husband expected her to adhere to. In other words, Helga was expected to perform the 'female' duties while maintaining her career. She was acutely aware (and resentful) of the constraining impact which this had on her free time compared to that of her husband (who was also a teacher) and attributed his far greater use of ICT to this difference.

While Helga was unique among interviewees in her particular circumstances and the extent to which lack of time was reportedly a barrier, cases such as hers have been frequently reported in prior studies (Antonio & Tuffley, 2014; Geldof, 2011; Gill et al., 2010; Hafkin & Taggart, 2001; Hargittai & Shafer, 2006; Scott, 2017; Steeves & Kwami, 2017). The finding of the World Wide Web Foundation (2015b) makes particular mention of lack of time as the single greatest barrier to females increasing their Internet usage (notably outweighing both the challenges of cost and skills). While Helga made time for basic ICT activity, this was typically more aligned to tasks viewed as priorities. The more detrimental effect of lack of time on her digital engagement was that she could not freely explore technology at her leisure to find new opportunities or for more recreational purposes. This directly corresponds with the insistence of Hargittai and Shafer (2006) that available leisure time has a significant impact on the *intensity* of use.

The only participant who was close to having the same set of personal circumstances as Helga was Rashieda. One important difference between the two women was that unlike Helga, Rashieda's profession relied heavily on technology so she used her computer for most of her working day. The extensive exposure to ICT in her work context led to it spilling over into other life areas and becoming the main form of entertainment for her and her family as well (more so since being unemployed). Therefore, time to engage with technology during her working day was not a problem for Rashieda. However, finding the time required to attend digital training and obtain certification was a considerable challenge. This was viewed as an impossible feat while she was employed and difficult even while unemployed, given her childcare duties as a stay-home mom to a toddler. Attending training was ultimately only possible with the support of the extended family – which Helga did not have, having migrated and left her support system. This corroborates previous research which revealed that time constraints and lack of child care was a major factor in preventing women from attending ICT training programmes (Balasubramanian et al., 2010; Dlodlo, 2009).

The case of Charlene, previously a housewife and currently employed, allows for more insight into a potential relationship between employment and the time required for digital engagement. A great deal of her daily time while unemployed was occupied with ICT. While this high frequency of activity occurred while she was a married woman, it intensified when she became a widow. However, entering the formal workplace did not significantly affect her time to engage with technology. This was at least partially due to ICT being relatively embedded in her line of work – much more so than Helga's. The personal circumstances of these women also diverged in a number of ways: Charlene was single, her children were grown and consumed little of her time, and she was not raised in a context of strict gender norms. Furthermore, she showed considerably greater resistance to her previous husband's expectations that she adhere to an inferior role in the marriage. As opposed to the barrier which limited free time played in the digital activity of Helga, the exact opposite was true for Charlene where an abundance of not only free but also alone time actually served as a driving force in ICT usage. Substantial free time also enabled the very frequent digital activity of the youngest unemployed interviewees.

5.4.7 Literacy and language

Ten of the 12 interviewees had attained an education level of a minimum of grade 10 and with it a reasonable level of literacy. Two women fell outside of this bracket: Diane had not completed primary schooling and Jasmine had no schooling whatsoever. These two cases offered an insight into the impact of either limited literacy or complete illiteracy on ICT engagement. The degree of this impact on the two women differed considerably. For functionally literate Diane, a lack of confidence

in her writing ability did not prevent her from using digital applications but impacted how she engaged in them. While she enjoyed reading content on social media, fear and self-consciousness about what she believed to be poor spelling prevented her from making commentary and posting content. It is worth noting that this embarrassment did not appear to affect her activity on the text-based platform, WhatsApp. This is probably because of her consciousness of the extensively larger audience on social media compared to her close family and friends on WhatsApp. Though it is likely that she may not have engaged more actively even if more confident in her literacy, this certainly significantly factored into her reluctance to be more expressive online. For Jasmine, the complete inability to read and write significantly constrained her ICT usage leaving her unable to capitalise on the applications used by others which require at least a basic level of literacy. While other barriers (specifically lack of awareness of the potential of ICT) perhaps prevented her from getting to the point where her illiteracy presented a serious challenge, this did factor into even the limited mobile phone features which she used. However, she had developed strategies to effectively carry out basic digital activities.

Language proved less of a challenge for the women than literacy. Though the home languages of the women in the three areas were not the same, most interviewees were either fluent in English or had sufficient understanding and conversational competence in it. As such, none of the women saw the dominance of English on ICT platforms as a constraint. This was also the least impeding factor to online engagement for female Internet users in the Research ICT Africa (2015) study. Contrary to this, prior research found this to be a challenge, where the Internet was abandoned due to a perception that everything was in English (Chigona & Mbhele, 2008). It should be noted that this was in a community in the Western Cape which could be considered quite similar to Saldanha Bay, both being small, primarily Afrikaans speaking, fishing communities. Though not a personal barrier, some of the more educated participants (particularly those in Khayelitsha where English is very rarely a home language) noted that this may be problematic for their less educated community members. One interviewee noted that her Xhosa-speaking daughter struggled with English. However, Iris's view was that any potential language barrier in ICT usage would be overcome as she advanced at her school.

It should be noted that it was difficult to gauge the extent to which language was a barrier to some of the less active ICT users. Some observations can be made, however. Fiona, for example, made no use of the Internet beyond WhatsApp where she conversed in her first language, Afrikaans. She made no use whatsoever of the Internet as an informational resource or in any context where its primarily English foundation might have posed a challenge. Given that online writing is often on a level which excludes even those with basic English fluency (Gigler, 2004; Livingstone et al., 2008), it is plausible

that certain interviewees might have experienced more difficulty in using the Internet for more advanced purposes. Greater exposure to online content in English seems to have made the more educated respondents and those using technology more extensively accustomed to this as the norm. The prospect of change in this regard was even viewed as odd by some and rejected and disapproved of by Xhosa-speaking Iris, who seemingly perceived English as the appropriate language of technology rather than her own African language. However, the question arises as to whether her fellow community members in Khayelitsha would agree.

5.4.8 Concerns and negative perceptions related to ICT

Even the most appreciative ICT users among interviewees held some negative views or concerns regarding pernicious or unwanted impacts associated with ICT. This affected digital engagement in various ways, as described below.

- ***Concerns related to participating on social media***

Much of the concern of respondents related to participating on social media platforms. Most practised restraint in exposing personal information, particularly visual material like photographs of themselves or their children. It was notably more digitally advanced interviewees (such as Bongiwe and Rashieda) who reported either rarely or never uploading such images, even on the more trusted instant messaging platform WhatsApp. A general fear of exposure also led to limiting self-expression and public commentary, aptly reflected in Diane's statement describing her cautious approach on Facebook: "[Y]ou must be careful what you say. Because it's a media, like you said. Everybody is reading it. So, you must be very careful." While many participants adopted a similar guarded approach, only one interviewee, Belinda, was unsettled enough by the perceived risk to her personal privacy that she refrained from participating on social networks whatsoever. This decision was underscored by a deep distrust of the Internet – attributed to the dangers portrayed to her by the media itself – and opposition to what she viewed as a growing culture of overexposure and devaluing of privacy. Engaging on such channels and voicing opinions was viewed as making oneself vulnerable to a host of negative consequences with potentially dangerous repercussions: "[Y]ou cannot just say things freely, you're now held accountable for it […] So, even if you want to have a strong opinion you really can't voice it because you're going to be held accountable for it."

- ***Online risks and safety issues***

Participants had, had a range of experiences with ICT leaving them concerned about digital safety. These include: being targeted by perpetrators of scams; negative experiences with online financial

transactions; hacked social media accounts; personal photographs being 'stolen' and; harassment by men via multiple digital channels. This supports the literature which noted that women are particularly vulnerable to the threat of cyber-stalking, harassment and unwanted advances (Gorski, 2001; Henry & Powell, 2015; Ponge, 2016; Throop, 2014). On a different note, one interviewee (Bongiwe) was left frustrated and irate when she discovered that a government organisation had made her personal information (including her identity number and home address) public and freely available online. Given such instances, it is probably not surprising that a significant number of women reported that they were not willing to entrust their personal information to government organisations during their online interactions (Research ICT Africa, 2015). There was also significant concern among several interviewees for the safety of young people and children online (for example, as a result of the increasing prevalence of online bullying). This issue was particularly raised by young participants like Annie and Grace, possibly because they were part of the generation raised in the digital age and thus had a greater understanding of issues affecting the youth. Personal negative experiences, as well as an awareness of potential risks and dangers had left many respondents viewing the Internet as unsafe. However, it had not deterred them from using it or resulted in a noticeable uptake of security measures (with the exception of a few more knowledgeable ICT users like Bongiwe). This correlates with studies which showed that while security was a concern, it was not enough to significantly deter women from using the Internet or mobile phones (Sylvester, 2016; World Wide Web Foundation, 2015b).

Given the generally widespread scepticism of the Internet and the related risks, the positive perception and openness to engage in a sensitive activity like online banking may be surprising. Though eight of the 12 respondents did not use this digital feature, only Helga refrained specifically because of her safety concerns. The difference between her concerns and those of Belinda (previously highlighted as rejecting social media due to the perceived intrusion on privacy) illustrates the diversity in participants' fears and the various digital channels which are consequently avoided. Contrary to the literature suggesting that security concerns were not a significant deterrent to women's digital participation (Sylvester, 2016; World Wide Web Foundation, 2015b), the cases of Helga and Belinda are consistent with other research revealing that half of the female Internet users' concerns were significant enough to constrain their online activity (Research ICT Africa, 2015). The interview findings also revealed an age factor in the tendency of respondents in their early twenties to view and treat digital security risks more nonchalantly. Other notable disparities in perspectives also emerged among respondents, for example, differences in the extent to which interviewees believed an individual has control over their own safety online and; differences in how participants discussed the Internet and safety: some appeared to assign blame to the technology itself whereas

younger and/or more avid and experienced users highlighted the human factor, i.e. people use the resources in pernicious ways for harmful purposes. This latter view is evident in Annie's comment: "some people now go make [the Internet] bad."

- ***Explicit, inappropriate, immoral or discriminatory content online***

Nearly all Internet users among respondents had come across content of an explicit nature online. Though pornographic material was frowned upon by most – and viewed as "disgusting" by some – and though it may factor into perceptions of the Internet as being unsafe or immoral, it had little effect on the usage of interviewees, who tended to overlook this. Mothers and grandmothers, Rashieda, Jasmine and Charlene, were, however, concerned about their children and grandchildren (specifically boys) being exposed to such content and attempted to monitor their activity when possible. For Charlene, her then teenage son's frequent consumption of online pornography was the sole reason that she ever considered ridding her house of the technology, which she was so accustomed to. Faced with what she described as a difficult dilemma, her affinity for the Internet ultimately outweighed her concerns. The respondents' concerns regarding children viewing adult content were not limited to the Internet. Jasmine, for instance, underlined that the television exposed her grandchildren to such content.

Opposition to what was considered highly inappropriate online content appeared to only impact on two interviewees (again, Belinda and Helga), both of whom had devout religious backgrounds and approached their digital activity from this worldview. Helga's dislike of what she referred to as the "bad things" was significant enough to contribute to her limiting her frequency of engagement on social media (which she would have abandoned altogether if not for it being required of her). The abundance of immoral content on the Internet soured Belinda's views of the platform in general and influenced the particular digital channels she chose and the activities in which she engaged. This is related to another perception held by a few interviewees that traditional gender norms and the manner in which women are typically viewed and treated in society are now reflected and reinforced online. According to the literature, the huge amount of online content of a sexual nature has served to normalise the sexual exploitation of women to some extent, which is a matter of serious concern (Gurumurthy, 2004; Ikolo, 2010). Belinda, in particular, was firm in expressing her belief that the Internet had become the modern means of the sexual objectification and degradation of women. She noted that while this had occurred in society throughout time, it had now transitioned into the technological space where it had become infinitely more widespread and harmful. Iris and Annie also lamented that women are shamed on social media for engaging in practices which are considered culturally taboo for females and how differently males and females are generally depicted online.

On a different note, Rashieda believed that the Internet and media at large do a grave disservice to certain minorities and religious groups including her own, by demonising and presenting an unfair portrayal of Muslims, whose perspectives and stories are often ignored. She explained: "There's two sides to a story and unfortunately for us, there is only one story that gets broadcasted."

- ***The Internet and deteriorating values***

Several interviewees believed that the Internet and social media in particular host what was considered to be many of the negative qualities of human behaviour. One such perceived quality is the superficiality of many users of these platforms, which are reportedly used to portray an often misleading image of oneself and to boast about achievements. This soured Rashieda's perception of social media to the point where the negative outweighed the benefits she derived from such applications. She therefore stopped using these platforms. As a young woman, Grace discussed the dangers a fixation on online presentation can have on the mental well-being of people her age though this had reportedly not affected her own use of social media. It was also noted by Rashieda that a sense of decency or decorum in behaviour, interactions and consideration for others had significantly deteriorated on online platforms where people had become brazen and emboldened in expressing ill-mannered or rude commentary. This contributed to perceptions of social media platforms as being increasingly negative, toxic environments.

- ***ICT as a disruption***

Both interview findings and the literature (Research ICT Africa, 2015) suggest that ICT serves as a distraction for some women. Interviews revealed this may manifest in a disruption of sleeping patterns (particularly in the case of Charlene) or delaying the completion of daily tasks. What was more prominent, however, was a perception among more than half of respondents that ICT has grown embedded in society to the extent that it has become a disruptive force in traditional human interaction and communication to the detriment of relationships. A similar sentiment was expressed in the literature with respect to social networking and the concern that this was leading to anti-social behaviour (UNESCO, 2011). This perception was held both by intensive users – particularly, though not exclusively, young interviewees – who witnessed this in their own digital behaviour as well as those less active (for example, Fiona and Belinda) who frowned upon what they viewed as an excessive use of technology among their friends and families. Interviewees noted how people have become "consumed" (Charlene) and "enslaved" (Rashieda) to their phones and the Internet. Five respondents were concerned about the deteriorating communication within their households as the use of ICT had increased and was seemingly gradually replacing face-to-face interaction. These

participants lamented typical situations occurring within their homes such as children watching television and using phones during mealtimes, spouses occupied on their devices upon returning from work and household members communicating with one another from different rooms via instant messaging. Their strong disapproval was reflected in descriptions of this growing trend as "abuse" of the phone – particularly felt by those whose use of the device was largely restricted to basic communicative activity. Among certain older interviewees, there was also a sense of sentimentality and longing for a previous era before the pervasive integration of technology in society. Diane commented:

> [T]here's no more communications because this one is on the phone, that one is on the phone. When you're not on the phone, you're watching TV. The olden days there was no TV, there was no phones. The communication was much more better. Like today, no. I'm in my corner, you're in your corner.

Younger interviewees (i.e. those in their early twenties) also observed the disruptive impact of ICT within their social interactions. They referred to face-to-face conversations being conducted while operating mobile devices – notably not out of boredom but an unconscious force of habit which reflects how embedded digital engagement has become into behavioural practices. The literature reported trends of mobile phones disrupting face-to-face interactions and having negative effects on closeness, connection and the quality of conversation (Przybylski & Weinstein, 2012). Though the young participants considered the changing nature of traditional social interaction to be a matter of concern, these thoughts were fleeting and did not have an impact on their digital engagement. Middle-aged and older interviewees, who often found themselves on the receiving end of the conversation with someone distracted by their phone, considered this behaviour "selfish" and not "civilised". Similarly, in the literature, research participants referred to such behaviour as "inconsiderate", "disrespectful" and "disruptive" (Washington, Okoro, & Cardon, 2013). It is also noteworthy that, as in the interview findings, it was older women in the literature who wanted more restricted cell phone usage in most social situations (Forgays, Hyman, & Schreiber, 2014). Belinda explained how such "selfish" behaviour was mismatched to her view of appropriate etiquette: "[…] you're sitting in people's company and part of communication is looking into someone's face, looking into someone's eyes and their body language." Beyond disruption in social interaction, there was also a common perception among participants that ICT has a negative impact in being a threat to romantic relationships. Technology was considered a catalyst to extra-marital affairs and was perceived to have introduced dangerous elements like pornography and dating websites, resulting in conflict. Helga perceived men of her (Xhosa) culture in particular to be generally promiscuous and prone to engaging in extra-marital affairs and considered ICT as a significant enabler.

It is notable that there was a general sense of acceptance among participants that the perceived unravelling of traditional communication due to ICT was beyond control and could only be contained if forced by external influences. For example, Rashieda's recently more constrained financial situation meant she was able to purchase less data for her and her children, while Charlene expressed that sporadic interruptions in Internet connectivity in her home had the advantage of forcing face-to-face conversation among her family members. Only one interviewee, Belinda, had actively taken steps to remove certain technology from her home. In this case, it was the television that had become too great of a focus and interfered with the communication in her marriage. She had also previously gone without owning a mobile phone for a considerable interval. She experienced this as a "quiet" and peaceful period, which reflects her perception that ICT introduces an element of distraction into one's life. Prior research found that despite the benefits many users perceive, smartphone usage also led to feelings of distraction or frustration (Pew Research Center, 2015b).

Aside from the perception of ICT as distractive and disruptive to relationships, a few of the more advanced users among interviewees (namely, Rashieda, Grace and Bongiwe) were or had recently become more aware of the inevitable impact technology would have on future jobs and concomitantly the livelihoods of their children and community members who were perceived to be ill-equipped for these changes. These threats that modern advancements hold were a matter of concern and were frightening. They somewhat soured perceptions of technology, even for those with very positive views.

5.4.9 Environmental constraints

Poor network signal was a common and frustrating experience for interviewees. For the most part, this was an inconvenience or a "pet hate" as Belinda described, without significant impact and primarily disrupted or delayed recreational or social use of ICT. For Iris, it had somewhat more consequential impact given her dependence on her phone for work purposes. Frustration caused by a poor signal had minor influences on the respondents' digital decisions. Two participants chose to refrain from WhatsApp voice and video calls in favour of more expensive traditional phone calls, and Bongiwe opted to alternate between cellular networks as a means of reducing the inconvenience. Fiona from Mitchells Plain and Helga from Khayelitsha also reported the issue of frequent cable theft leading to power cuts that made it difficult to maintain a landline.

Participants from Mitchells Plain and Khayelitsha highlighted the significant difficulty of retaining possession of digital devices in their high crime environments. The Mitchells Plain precinct had the

second highest crime rate in the province in 2018 and the precincts of Khayelitsha and Mitchells Plain were rated second and third in the province, respectively, in the category of 'Robbery with aggravating circumstances' (Crime Stats SA, 2018). Respondents from these areas reported that they were vulnerable to theft when outdoors and when travelling on public transportation. This was particularly problematic given that all of the respondents from these two communities had no choice but to regularly use public transportation and, in doing so, walk a distance to and from their homes. Prior research revealed that a drug-ridden township (near to Mitchells Plain, with a similar demographic makeup and challenges) was "infested with thugs who rob phones to satisfy the drug crave" (Maleka, 2011, p. 144). Stolen mobile phones were a reason for not owning a device in the Research ICT Africa (2015) study and – though not relating to women – the literature revealed that concern for 'personal safety' was the foremost reason for South African men not owning a mobile phone (GSMA, 2018).

Different strategies were adopted in response to this threat. Bongiwe had become more pro-active in taking measures to safely store her data. For the most part, interviewees resigned themselves to the reality of their situation, attempted to keep their devices out of sight and, in the event of a robbery, bought a new device. As a result, Jasmine had owned over ten mobile phones and was again robbed (this time at gunpoint and physically assaulted) during the period between the first and second interview. These incidents had left her more inclined to use a cheaper looking device, believing this made her less appealing to criminals. This belief is supported by the literature that reveals that thieves are attracted to fancier looking mobile phones (Maleka, 2011). While concurring with the belief that sophisticated devices make one a greater target, Rashieda believed that an inferior looking device put one at greater risk of physical assault during the robbery as criminals were dissatisfied with their pickings and likely to resort to violence to express their anger. Rashieda's strategy was to avoid travelling with her devices whenever possible, thereby foregoing two of the main perceived benefits of the phone (as emerged from this study), namely its mobility and function as a safety resource when needed. However, she had no choice but to take her devices with her while employed. The fear she felt for her personal safety during these periods caused her a great deal of daily anxiety. She explained that her "nerves were shattered most of the time".

5.4.10 Resistance from a male partner

Three interviewees – Grace, Helga and Iris – faced some degree of opposition from their current partners in using ICT while one participant, Charlene, had dealt with considerable resistance from her now ex-husband while married. The fervent objections by her boyfriend and his resentment of her digital engagement presented the primary barrier to usage for 21 year-old Grace. Along with

seemingly being more direct and frequently vocal in his disapproval than the partners of Helga and Iris, Grace's boyfriend was also notable in attempting to sabotage her digital engagement by damaging the device. Though a source of conflict in the relationships of the other two interviewees, it was most significant for Grace as the keener ICT user, whose autonomy of use was diminished by resorting to begrudgingly abstaining from using ICT when in her boyfriend's presence. Grace's actions in view of keeping the peace, are aligned to that of many women in prior research who opted to maintain social harmony in the home (Buskens & Webb, 2014; Gender and ICT Network, 2005; Handapangoda & Kumara, 2013; Kyomuhendo & Kabonesa, 2006). The decision to limit her digital engagement in spite of her own wishes is an example of what was theoretically defined as 'adaptive preferences' (Masika & Bailur, 2015).

Male opposition to their female partner's digital engagement was either solely (in the cases of Iris and Grace) or partially (in the cases of Helga and Charlene) rooted in distrust and suspicion of the possibility of communication with other men. Most of these men inspected their partner's mobile device. Such suspicion on the part of men was also a common trend in literature (Gender and ICT Network, 2005; GSMA, 2010; Handapangoda & Kumara, 2013; Intel, 2012; LirneAsia, 2012; Porter et al., 2012). While many interviewees perceived an association between men, ICT and infidelity, they were not opposed to men's digital engagement and appeared far less active in monitoring their partners' phones.

An additional reason for male objection to women's digital participation emerged in Helga's husband's view that his wife's time should be occupied with domestic and childcare activity. The idea that ICT will deter women from these expected responsibilities was noted in literature as being related to traditional understandings of what constitutes a 'good woman' and concern that ICT may influence this (Gender and ICT Network, 2005; Intel, 2012; Kyomuhendo & Kabonesa, 2006). It is worth mentioning Helga's husband's upbringing in a cultural context with deeply embedded socio-cultural gender norms. The same internalised beliefs drove the objections of Charlene's former husband to her ICT usage. Married at a time when ICT was less pervasive, his wife's use of technology – perceived as a symbol of progression – appeared to have been interpreted as threatening to the power dynamic in the relationship. His opposition to her usage was thus an attempt to re-establish a sense of authority by showing "he is still the man" and "the one in control". This was comparable to the findings of studies in which men found ICT to be unsettling and threatening to domestic equilibrium and male dominance (Buskens & Webb, 2014; Gender and ICT Network, 2005; Kyomuhendo & Kabonesa, 2006). It is interesting that as arguably the most financially well-off interviewee, Charlene was also the only participant who emphasised the issue of socio-economic

class and distinguished herself from “lower class” citizens – a group which her husband reportedly formed part of, hailing from a very different background than her. Charlene’s worldview includes an understanding of “lower class” groups as less educated, more invested in traditional gender norms, having a mentality of complacency and lacking ambition towards progression. In her opinion this drove her husband’s attitude towards her digital engagement.

The diversity in women’s responses towards the opposition they faced is evident when comparing Charlene’s fervent resistance to be submissive, to other respondents who for the most part chose to conform to their partner’s wishes in order to keep the peace. Research has shown that women’s rebellion against their partners has aggravated domestic conflict and even ended marriages (Kyomuhendo & Kabonesa, 2006). While Charlene’s digital engagement was not the cause of her divorce, it certainly aggravated the power struggle which contributed to it. Ultimately, the barrier presented by male resistance to female digital usage – particularly in the cases of Helga and Charlene – corroborates the notion that ICT mirrors the uneven power relations and gender inequality offline (Wakunuma, 2007).

5.5 WOMEN’S MENTAL MODELS ON ICT AND GENDER

The discussion up to this stage has explored the patterns of ICT access and usage and the factors influencing the digital behaviour of the interviewees of this study. This section aims to delve deeper than examining the digital activity of respondents. It aims to explore the women’s broader understandings, perceptions and ways of thinking – their mental models – of a potential relationship between gender and ICT usage in their marginalised communities. This includes whether or not interviewees see gender as having any influence on ICT usage, potentially leading to disparities between men and women’s digital engagement, and their views on the causes of any such differences. This would allow for greater understanding of a potential relationship between socio-cultural gender issues and ICT access and usage.

5.5.1 Perceptions and experiences of gender norms as women

Interview findings revealed that participants shared a sense of the deeply embedded gender norms within society and their immediate communities. Nearly all of the married respondents abided by these traditional gender norms and either predominantly or solely took responsibility for domestic and caregiving responsibilities, often while maintaining full-time jobs. This supports reports that unpaid household, family and childcare responsibilities are disproportionately the domain of women (OECD, 2014; United Nations, 2014). When combined with employment, this is sometimes described

as the 'triple burden' (Pankan & Radhakrishnan, 2016), or as Diane noted, the woman's "second job". Though respondents from all three areas under study referred to the expectations placed on women and the widespread acceptance of male superiority as being central to their cultures, black participants from Khayelitsha (specifically, Iris, Bongiwe and Helga) particularly emphasised this. Bongiwe claimed that this inequality is deeply embedded and that women in her community were greatly at fault as they in fact *wanted* to be dependent on and supported by males. While acknowledging sexism and problematic gender norms to be a universal phenomenon, Charlene claimed that there tended to be a greater investment in such beliefs and traditions among groups of lower socio-economic status. Rashieda, on the other hand, lamented what she believed to be an inaccurate societal perception of women of her religion as being subservient. Interestingly, her argument was not that these traditional gender norms were not prevalent in Muslim households, but rather that they in fact empowered the women. As an example, she referred to the gender norm that men must work, fulfil the role of breadwinner and share their earnings with the family while this is not expected of or is optional for women.

While the prevalence of these gender norms was strongly identified by almost all interviewees, differences emerged in whether women supported or opposed these traditions. Older participants such as Diane and Eleanor, along with devoutly religious Belinda tended to approve of these norms and support notions such as the male being the rightful authority figure in the home and the family breadwinner. The rest of the participants, however, considered these norms to be largely antiquated, though their degree of dissent varied from merely voicing disagreement with certain traditions when questioned, to expressing vehement opposition to or resentment of women's inferior status in society and the expectations which accompany this.

There was a divergence in perspective among women as to whether these gender issues played any discernible role within the context of ICT usage. The following discussion details the mental models held by women with regard to such a potential relationship between gender and ICT.

5.5.2 Perspectives of a relationship between gender and ICT

5.5.2.1 Mental model: No relationship between gender and ICT usage

The participants that did not perceive any distinguishable differences between males and females in the digital space were primarily those with very limited digital engagement and older respondents. For Eleanor (51-years-old) and Jasmine (60-years-old), their own limited use and remote or distant relationship with ICT was often in stark contrast to others in their circles – whether male or female. This seemingly resulted in them perceiving a chasm between themselves and others rather than men

and women in general. Jasmine's very limited understanding and awareness of the functions of (relatively widely known) ICT and the purposes for which others typically use computers and smartphones left her lacking any deeper insight into potential distinctions between men and women in the digital space, particularly in more sophisticated use of ICT. She also observed little difference in the digital activity of her adult son and daughter who live with her, considering them both to be generally limited in their use of ICT. While Eleanor observed some gender differences in her immediate social circle and described male family members as more competent, she did not believe this to be the case at a broader societal level. The mental models of interviewees like Eleanor and Jasmine are aligned to that of females in the research findings of Li and Kirkup (2007, p. 313) where women had little faith in their ability at an individual level, yet had confidence in the capability of females as a collective, thus believing: "*we* can but *I* can't".

Twenty-one year old Grace on the other hand differed considerably from these women, being an avid, far more engaged and confident ICT user. Her personal comfort with using ICT and the frequent use she observed both her male and female peers making of it meant she did not support the notion of the existence of a digital gender divide. Instead she perceived an age disparity. She considered her young male and female peers equally competent and older generations of men and women equally limited in their digital usage and ability. Her mother and father's comparable lack of digital participation had contributed to this perception. Jasmine also perceived digital disparities between her and her children on the one hand, and her grandchildren on the other. As opposed to her son and daughter, her older grandchildren were avid ICT users who made frequent use of their phones and the Internet and were able to use computers. Jasmine attributed this generational difference in digital competence to education and the difference in exposure to ICT they were afforded at school. These perspectives correspond with research and popular discourse claiming a digital divide between young and older generations and noting age as a pertinent predictor for digital engagement (ITU, 2017a).

5.5.2.2 Mental model: Relationship between gender and ICT usage – male dominance

Nine of the 12 respondents perceived significant differences along gender lines in ICT usage in their immediate communities and society as a whole. This was primarily reported by the more engaged ICT users among interviewees who perceived a strong trend of male dominance in the digital space, identifying men in their communities as the more frequent and/or skilled users of technology. Bongiwe – who considered herself an exception in this regard – claimed this disparity might not be obvious if one went on outward appearance. According to her, women in Khayelitsha tended to own mobile phones equally as sophisticated as those of their male counterparts. However, this was

reportedly merely for appearance or status and hid the reality of their lack of knowledge and limited range of use of the devices. Jasmine is thus a good example of the phenomenon described by Bongiwe. As in the literature (Broadband Commission, 2013; Collado, 2013; Hilbert, 2011; Huyer et al., 2005; Robinson et al., 2015), the claims and examples of access not translating into usage suggest that the digital gender disparity that interviewees perceived may be related to the use of ICT rather than access. This trend was alluded to by other interviewees as well. It is evident in Belinda's statement: "I would maybe just have a 20% usage of it. [My husband] uses it 110%. So he's getting the maximum use out of it."

Other perspectives of male superiority in the digital space also emerged from interview findings, one being the issue of an age disparity – which was discussed previously but is now highlighted in relation to gender in ICT usage. Charlene in particular considered age as an important factor in understanding gender within ICT usage. While echoing Grace and Jasmine's perceptions of an age gap, Charlene believed that only older women (specifically those aged 45 years and older) and not men lack interest in ICT. This view corresponds with previous findings related to the digital gender divide phenomenon which described the disparity between men and women as more pronounced among older groups and identified older women as typically the least digitally engaged group (Fortunati, 2009; ITU, 2016; OECD, 2007; World Wide Web Foundation, 2015b, 2016). On the other hand, Rashieda noted that she observed far greater digital competence in her young son than her older daughter, and 19-year-old Annie claimed that males her age were also more digitally advanced than females, suggesting a gender gap in younger groups as well. A final interesting perspective on the nature of the relationship between gender and ICT also came from Charlene. Based on her view that antiquated gender norms and beliefs were more deeply embedded among groups of lower socio-economic status, she also believed that the association of ICT with men was stronger among these reportedly less educated groups.

Opinions as to the cause of the identified digital gender disparity and male dominance in the digital space varied among interviewees and are discussed below.

a) Innate differences between men and women impact ICT usage

Several participants – specifically, Helga, Iris and Annie – had the view that the gender differences in ICT activity might potentially be innate. These women considered gender differences in ICT usage as (at least partially) due to men being inherently superior with technology, grasping technical concepts faster and attaining some deeper level of understanding of ICT, whereas women are more fearful and have less interest in technology. This strongly suggests the persistence of an early narrative of

males as more interested, tech-savvy and simply naturally better suited to technology (Fallows, 2005; Satapathy, 2014). That these views are held by interviewees on the younger end of the age spectrum including the youngest participant (19 year-old Annie) is particularly indicative of the enduring nature of such detrimental perspectives. Annie's stance is even more significant given her strong attachment to ICT, spending the bulk of her time engaged in activity on her mobile phone and observing the exact same behaviour in her female friends, yet still considering males more advanced. Her perspective of male superiority within the ICT context thus appeared related to quality and sophistication of use rather than quantity or frequency of engagement. Annie's stance is particularly striking in contrast to the earlier discussed Grace who is similar in age, an equally avid ICT user, with a similarly digitally active female social circle. The significant difference in perspectives of the two women is likely attributed to a great disparity in confidence and self-perceived ability – which Annie was sorely lacking. This was exacerbated by her living with reportedly highly skilled male siblings, whereas Grace had no such point of comparison and was secure in her role as the most digitally competent household member. Helga also observed the men in her life to be more advanced users and the women in her community to be highly lacking, not only in ability, but in interest in participating. This had effectively solidified her perception of men as superior. Iris's context, however, differed from that of Annie and Helga in that men in her immediate social circle were not seen as more advanced users and yet she also undoubtedly considered males to be within society at large and was inclined towards an explanation of innate differences. She appeared to associate her own formerly distant relationship with ICT as being "a woman thing". The following claim by Iris is a fitting reflection of a worldview of innate gender differences in ICT usage:

> [M]en are good at it. Even if they know nothing about IT […] they will still do it better than women […] They will do better than women even if they don't know anything about computers but they still do it better than women.

It is notable that this is her stance even after having undergone some form of digital skills training, which speaks to how deeply embedded this belief is. Iris, Helga and Annie can be viewed as generally comparable in lacking confidence in digital ability.

b) Socially constructed gender norms impact ICT usage

Contrary to the theory of innate differences, other interviewees who perceived a digital gender gap within their communities attributed this to causes born out of socially constructed gender norms and behaviour. This was notably (though perhaps unknowingly) also alluded to by the participants who claimed the innate superiority of males within the digital space. A common explanation proposed by several respondents (such as Charlene, Belinda and Annie) for the perceived male superiority in ICT

usage was that males have simply had more training and exposure to ICT than females. This tended to be reported by participants who had directly observed this within their own personal networks. The literature has also noted men's more extensive experience of using ICT during which they have more time to build confidence in their abilities (Li & Kirkup, 2007; Mubarak, 2014; Steeves & Kwami, 2017). Belinda attributed women's lesser interest in ICT to their lower degree of training and exposure and consequently a greater fear of the unknown. The reasons which participants posit for this gender difference in training and exposure to ICT is particularly interesting.

Arguably the most commonly proposed rationale by interviewees viewing digital gender disparity through the lens of social constructs is the same reasoning supported by a bulk of the literature: that socially constructed gender norms that place a heavier burden of responsibility on females limit the amount of time women can engage (Antonio & Tuffley, 2014; Cowell, 2016; Dixon et al., 2014; Gates, 2014; Geldof, 2011; Gender and ICT Network, 2005; Gill et al., 2010; Gurumurthy, 2004; Hargittai & Shafer, 2006; Ibrahim & Adamu, 2016; Indo-Asian News Service, 2015; Kennedy et al., 2003; Kennedy, 2011; Pankan & Radhakrishnan, 2016; Scott, 2017; Steeves & Kwami, 2017). As detailed in the earlier discussion on the constraining influence of time (section 5.4.6), this was the personal experience of Helga. Though it did not personally affect them, the other interviewees from the same area, falling within the same age bracket and life-stage (namely, Bongiwe and Iris), strongly identified time as one of the foremost factors in the gender disparity in ICT usage. Their perception of this as a deciding factor in digital gender disparity was based on observations of the community and not on personal experience, reportedly due to: a) not having live-in partners and; b) having a great deal of childcare assistance from extended family. It is noteworthy that these three interviewees (Helga, Iris and Bongiwe) are also those who stressed the intensity of gender norms in their culture. The participants also indicated that these gender norms and expected behaviour reportedly apply to girls from a young age, leaving them facing a greater challenge than boys in finding time to engage – also a finding of previous research (Steeves & Kwami, 2017).

A number of respondents appeared to believe that social norms effectively limiting the free time at women's disposal results in differences in the type of digital activity between men and women where males are observed spending more time in entertainment-oriented activity. This finding therefore supports that of previous research noting a distinction in usage given that women often do not have the luxury of time to pursue digital activities simply out of personal interest (Ibrahim & Adamu, 2016; Rathgeber, 1995), and that men are far greater represented in the use of ICT for recreational purposes (Bujala, 2012; Collado, 2013; Cowell, 2016; Hilbert, 2011; Intel, 2012; Tondeur et al., 2016). Furthermore, there was a perception among interviewees (for example, Fiona, Iris and Helga) that

greater responsibilities and limited time results in women opting to allocate their time and focus to what is considered more important activity – implying that ICT is in fact perceived as low on women's priority lists.

Various character traits generally culturally associated with either masculinity or femininity were also perceived to play a role in ICT usage. Iris reported a tendency for males to want to present themselves as self-sufficient and knowledgeable. She believed they are thus much more opposed to asking for assistance than women, for whom acknowledging that they lack knowledge was not perceived as an embarrassment or something to conceal. This appears similar to research findings that digital skills were viewed as important for a male's reputation and social standing, and are acquired by men in order to feel superior (Mubarak, 2014). Lacking in this regard would mean being compared to the inferior female. Such a gender norm would exert greater pressure on men to become familiar with ICT than it would on women. This may also partially relate to Rashieda's son who seemed to acquire digital knowledge largely due to the pleasure he received in taunting family members with his more advanced ability. Her description of this as a "boy thing" also speaks to her perspective of this being a male character trait. If one were to accept that competence in usage is important to men, contrasted with the earlier discussed premise that access for the sake of appearances is important to women, it may signal a significant difference in the impact of ICT for males and females. Additionally, if we were to work from the premise that men seek to be viewed as independent which would have a motivating influence on their digital engagement, it might be worth considering what – if any – impact dependence would have on women. It is clear from interview findings that many participants were socialised to be dependent on men: nearly all the married interviewees, as well as some single respondents, for example, either directly stated or indirectly revealed their belief that it is the man's duty to financially maintain the family. This could thus be viewed as support for Bongiwe's emphatic claim that women in her community want to be dependent on men. It is thus worth considering whether this socialisation of women to be dependent may potentially contribute to their preference for or the comfort many interviewees take in being dependent on others to perform digital tasks on their behalf, rather than being self-sufficient.

Other gendered traits or characteristics also appeared to have an impact in the ICT space based on interviews. Teacher, Helga, for example described how abiding by rules was associated with females, noting girls "like to keep the rules" whereas boys are "adventurous". In the computer class setting, where independent learning and exploration is discouraged, this creates a chasm between digital engagement of males and females at a young age. The outcome in this instance is similar to the case

in the literature where the cultural norm 'girls don't run' resulted in girls reaching the small number of school computers later than boys (who ran) and effectively had less time and exposure to the machines (Gadio, 2001). Such scenarios challenge the perception that girls are innately less curious or interested in ICT than boys when in fact they are merely adhering to gender-differentiated prescribed rules which place them at a disadvantage.

Several of the most digitally engaged and advanced participants conveyed that a significant reason for the digital gender disparity, which they observed within their respective communities lies in an on-going mentality that ICT – particularly within a professional or career context – is a male domain. This was reportedly in part due to community members being accustomed to typically observing males enter these work or study fields. Additionally, detrimental perceptions exist that technological professions are somehow in conflict with traditionally held notions of femininity: for example the association of ICT related occupations with being "dirty" – which is not viewed as a feminine trait. Rashieda explained that certain careers were still largely perceived within the community as male professions. Construction work was highlighted as an example of a profession which women would be ostracised for entering and possibly labelled as gay. While a career in the field of technology might not be perceived as crossing gender boundaries to the same extent, Rashieda noted that it still remained within the category of work falling within the male domain, and as such, could deter females from choosing it.

Interviewees like Rashieda and Bongiwe reported that such a detrimental mentality was also held by young women in their areas. According to the literature these perceptions begin early on: school subjects (i.e. STEM modules), which typically precede careers in ICT, are perceived as being at odds with qualities typically valued in women (i.e. femininity, people-oriented and modesty in abilities) (Cheryan et al., 2015; Federal Ministry for Economic Cooperation and Development, 2017). Females were thus socialised to believe they are bad with technology and that it is not really their domain, which leads to their underestimating their own abilities (Li & Kirkup, 2007; World Wide Web Foundation, 2015b). Prior research found different socialisation experiences between girls and boys, and boys enjoyed greater support and motivation by parents in their computer learning (Vekiri & Chronaki, 2008). This factored into their computer competence and the value they placed on learning computer skills. In other words: "Girls are exposed to different social expectations when they start using computers, before they even begin to think about their academic and career plans" (Vekiri & Chronaki, 2008, p. 1401). Consequently, girls often lack a sense of belonging in the field, which remains with them well into adulthood and they are less likely to pursue these professions (Intel, 2012; Vekiri & Chronaki, 2008). This was evident in a situation Bongiwe recounted where she found

herself having to convince a young woman in Khayelitsha to pursue IT as a study path as the girl had been socialised to believe – and had internalised the perception – that it was a man's field. How deeply embedded and taken-for-granted these beliefs and worldviews are is evident when considering how quickly interviewees like Annie and Iris were to claim the innate superiority of males, yet when asked to reflect on this, presented explanations or rationale more in tune with gendered socialisation underlying differences.

This brings to mind a point made by Belinda that the issue is not whether women are not able to advance in ICT ability but: "It's a matter of do [women] want to apply that to themselves?" Bongiwe noted that there has traditionally been less focus on educating women and girls on the importance of technology and its growing role in society, beyond merely communicative and social functions. She explained:

> […] as women we are not taught about the importance of technology. So, most women still perceive technology as you know, something that's not very much important, though they see that everything now is being done through technology but they still don't value it.

Interviewees like Bongiwe and Rashieda proposed that increasing the participation of females in ICT would require changing a societal perception associating more sophisticated technological use with males and shaping the mindsets of young girls into believing that "It's not only a boy thing." Furthermore, even in cases where girls may not associate ICT with males per se, focused effort may also be necessary to change perspectives and make ICT careers appealing to females. The case of Grace is applicable here as, despite being an avid ICT user and claiming she would enjoy a career where she could spend ample time interacting with computers, the prospect of pursuing a career within the IT field was immediately off-putting and she rejected it. This alludes to a broader underlying negative stance, not towards ICT itself but ICT focused careers. Based on interviews with participants like Rashieda, Bongiwe, Belinda, Helga, Iris, Annie and Charlene, it seems that women do not view ICT as *for* men where common ICT devices and functions are concerned but do seem to *associate it more with* men when it comes to more sophisticated engagement, specifically in a professional context.

5.5.2.3 Mental model: Relationship between gender and ICT usage – female dominance

One participant's perspective is noteworthy in its complete divergence from all others. She saw females as more digitally engaged and advanced users than males. Rather than gender-based norms having an impeding influence on women's digital participation, Diane observed that this had, had quite the opposite effect on her adult daughters. These women had reportedly integrated ICT into

the process of carrying out many of their expected responsibilities such as maintaining communication with family members regarding daily practical domestic tasks and assisting children with homework – a duty reportedly also falling within the mother's domain. These observations led Diane – a very limited digital user herself – to regard ICT as very much a female-oriented resource. Diane's perspective is thus in line with the view that ICT enables existing gendered needs and activities to be carried out (Sylvester, 2016). Interestingly, the very same argument Diane made for ICT being a female resource is the one which certain literature has used to justify the opposite, i.e. that women's lower engagement is "out of a sense of pragmatism, that is, out of their need to deal with a multitude of tasks" (Ibrahim & Adamu, 2016).

5.6 CONCLUSION

This chapter has integrated the analysis of the findings with the relevant literature in a nuanced discussion on women's experiences and perceptions with regard to ICT access and usage. It explored the ways in which they access ICT; the purposes of usage; the underlying factors influencing usage; as well as the women's mental models on gender and ICT, which provide insight into a potential relationship between socio-cultural gender inequality and ICT.

CHAPTER 6:

CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

In light of the dearth of research providing an in-depth, nuanced understanding of the digital engagement of women in marginalised communities, this qualitative study, conducted from a feminist phenomenological perspective, aimed to address the following research question:

What are women in marginalised communities' experiences and perceptions with regard to ICT access and usage?

Given the lack of research that gives a voice to this particular demographic group, this study sought to answer this research question through exploring the lived experiences of women in marginalised communities with regard to ICT access, usage and factors which influence their digital participation. In order to do so, in-depth semi-structured interviews were conducted with twelve women living in marginalised communities of the Western Cape of South Africa. Their subjective first-hand accounts provided rich descriptions of each individual woman's experiences and perceptions of ICT. A feminist phenomenological perspective was chosen as it gives priority to women's own understandings and interpretations of their experiences, within the social structures of their environments (Fisher & Embree, 2000). The data were analysed by means of Interpretative phenomenological analysis. This was appropriate as it "attempts to explore personal experience and is concerned with an individual's personal perception or account of an object or event" (Smith & Osborn, 2007, p. 53).

The interview findings did not reveal a uniform, simple description of the digital activity of women in marginalised communities. Instead, a nuanced and diverse picture emerged of the ways in which respondents accessed, used and perceived ICT. The findings also reveal a complex and often interrelated combination of factors that influenced the digital activity of participants. This study, therefore, does not conclude with a simple description of women's ICT access and usage, but rather with one that highlights the diversity and depth of women's lived experiences with regard to ICT.

The following sub-sections of this chapter provide summaries of each of the significant aspects that emerged from this study relating to a) the women's access and use of ICT and; b) the factors influencing the women's access and use of ICT. Each of the phenomena to be summarised are listed

in Table 6.1 below. This is followed by a critical integrated overview of the salient findings and finally a summary of the phenomenon of women's experiences and perceptions with regard to ICT. The chapter concludes with recommendations for policy and practice, an outline of the limitations of the study, suggestions for future research and finally, the significance of the research.

Table 6.1: Superordinate themes and clusters

Access to ICT	Mobile phones, computers and the Internet
Purposes of ICT usage	Maintaining social connections Business or professional use Educational resource Informational resource Services and safety Citizen participation and mobilisation Recreation Cultural, emotional and spiritual needs
Factors influencing ICT access and usage	Ability, confidence, learning and support Affordability Interest, perceived relevance and awareness Availability of time Literacy Resistance from a male partner Environmental constraints Concerns and negative perceptions Gendered identities, norms and perceptions

6.2 ICT ACCESS AND USAGE OF WOMEN IN MARGINALISED COMMUNITIES

All respondents were involved in digital participation of some sort. However, the purpose and frequency of use, and the devices and platforms employed differed considerably. The following sub-sections summarise the respondents' access to and use of ICT.

6.2.1 Women's access to ICT

Each participant, across all socio-demographic groups, owned an Internet-enabled phone, which constituted either the primary or sole point of Internet access. Participants purchased their own phones or were given devices by family members. Computer ownership was the preserve of only interviewees who used these machines for either professional or formal learning purposes. However, others who lived in a larger and/or three-generational household were afforded some degree of exposure to computers. This included retirees, housewives, unemployed women and those involved in informal or manual labour. Only a few participants (three of the 12) made use of e-centres and prior research indicated that these designated ICT facilities were not extensively used by women in

the three focused communities (Research ICT Africa, 2015). Less typical or expected points of Internet access appeared to be commonly used by a greater number of participants. Several interviewees, for instance, used the facilities at churches to connect to freely available Wi-Fi via their phones.

6.2.2 Women's use of ICT

- ***ICT for social connections***

The social and communicative value of ICT was unquestionably the main benefit for most interviewees. This was the only function of the phone common to all interviewees and largely the only use of the device for the four oldest participants. Traditional phone calls remained common. However, instant messaging was used daily by 11 of the 12 interviewees. Digital communication was particularly highly valued by more socially isolated participants (housewives, retirees and divorcees), those separated from family members following migration and women who relied particularly heavily on the social capital of others – young respondents wanting constant interactions with peers and an older financially struggling interviewee gaining support from females in her township.

- ***ICT as a tool in business or professional tasks***

ICT was integrated into the professional practices of all but two economically-active participants, whether fully embedded in daily operations, or only used in business-related communication via phone calls or WhatsApp. The potential for economic and professional growth was the greatest appeal of ICT for participants in their 30s. This was specifically relevant to the young entrepreneurs heading single-parent households, who were highly motivated to capitalise on any resources able to assist in advancing their businesses. Despite the adoption of ICT in a professional context, many participants were reluctant to fully integrate ICT into occupational practices and there was an inclination to conduct certain tasks in the absence of technology.

- ***ICT as an educational resource***

The Internet was used as an educational resource by the sole respondent involved in formal learning at the time of interview. However, some mothers assisted in the educational development of their children by sourcing information online for assignments and using mobile phones and computers in innovative and enjoyable ways to advance learning. The mother most invested in this non-compulsory use of ICT differed from others in her perception of ICT as a critical resource in all productive activities. Others were not as progressive in their thinking and viewed ICT as more of a

distraction from, rather than enabler of, productivity. While interviewees generally associated educational activity and formal learning with computers, their mobile phones were the devices most often used to search for a variety of information, thus serving an educational function.

- ***ICT for seeking information***

The role of the Internet as a source of information was one of the most highly regarded benefits of ICT – praised even by several respondents who had never personally sought information online. This function was mainly capitalised on by the most frequent and engaged ICT users, specifically participants who had long since adopted technology and embedded it into much of their daily activity. These were typically employed and relatively younger interviewees. Apart from information for professional and educational purposes, interviewees often sought content related to topics of personal interest. They almost never looked to governmental sites for digital content. News was still largely received via offline, traditional mediums and word of mouth. Several respondents' perspectives and behaviour were influenced by content consumed online.

- ***ICT for services and safety***

Interviewees were not extensively capitalising on a wide range of digital applications and services, though more digitally engaged participants had at some stage used applications intended to increase efficiency (for example, Internet banking). A far more widely valued use of the mobile phone was its perceived role in safety. Those respondents most focused on this function of the mobile phone tended to be older, generally spent a significant deal of time alone, or resided in particularly dangerous neighbourhoods.

- ***ICT for citizen participation and mobilisation***

For the most part, respondents were generally passive consumers rather than active contributors of content or expression online. ICT was used in the organisation and facilitation of activity related to religious, political and civic community organisations of which participants were members. The mobile phone was commonly employed by interviewees as a means of enabling connections between community members regarding issues pertaining directly and indirectly to them. Instant messaging – sharing texts, images, videos and voice notes – was the preferred platform for informing community members or rallying community engagement.

- ***ICT for recreation***

Most interviewees, across the spectrum of ICT competence and usage, shared a fondness for older media (the television and radio) as digital entertainment. Few participants regularly streamed online content for recreation. Notably, one interviewee spent the bulk of her free time consuming downloaded content. The most common entertainment participants sought from the Internet was social networking, which offered them a wealth of recreational opportunities including a bulk of audio-visual material. Taking photos or videos on a mobile phone was popular among most respondents; playing offline games slightly less so. Significantly, playing games was the sole interaction a few of the older respondents had with computers.

- ***ICT for cultural, emotional and spiritual needs***

ICT had been integrated into the religious activities of women in a number of ways. It also had value in several other important contexts. A member of a minority religious group derived specific cultural needs and a sense of belonging from a niche local radio station; a self-described 'lonely' divorcee used her mobile phone as a form of emotional support and replacement for human companionship; a woman used a computer to document her thoughts in her process of self-reflection; and the youngest respondent used social media seemingly to seek external affirmation and validation.

6.3 FACTORS INFLUENCING THE ICT ACCESS AND USAGE OF WOMEN IN MARGINALISED COMMUNITIES

The study findings revealed that a range of factors influenced the ICT access and usage of the participants and affected the women in various ways. These are summarised below.

- ***Ability, confidence, learning and support***

Lack of ability and/or lack of confidence in ability were apparent amongst most interviewees across age, education and employment groups. This arguably presented the greatest obstacle to more substantial digital engagement and extending Internet activity beyond very basic use. The most extreme instance was in the case of a participant unable to use a phone for more than its basic offline features. Though poor digital competence was especially constraining in the use of computers, for most interviewees this extended to their mobile phones. Apart from a genuine lack of skills, interviews revealed a significant challenge in self-perceived lack of ability, concurrent with a lack of confidence and a sense of fear. Poor self-perceived ability was particularly noteworthy in preventing participants from online information-seeking, as had been reported in prior research

(Hargittai & Shafer, 2006). It is a matter of concern that the participants were unaware that their existing skills could be transferred to other digital applications.

Most interviewees were unwilling to venture beyond familiar platforms on their own thus advancement was dependent on formal or informal instruction. While a number of participants had undergone formal training, informal demonstration (by family members, friends and colleagues) was the more common means of skills development. These social support circles were critical in all of the interviewees' ICT engagement (or lack thereof), be it by teaching them, indirectly influencing their views and usage, or performing digital tasks on their behalf. The attitudes of family members had proved counterproductive to learning for some interviewees, who faced insults, impatience and/or (often subtle) discouragement. This most likely contributed to their poor self-perceptions – which may have been reinforced by negative self-talk – and discouraged independent learning. These findings accord with prior research which identified family members as often being hidden obstacles to learning (Lin et al., 2012). Social support systems also impeded learning and self-sufficiency for several interviewees as tasks were performed on their behalf. This adverse effect of strong social networks was also noted in the literature (Thompson & Paul, 2016).

- ***Affordability of ICT***

As might have been expected, given the strong correlation between income and digital participation (Alliance for Affordable Internet, 2016; Cohen et al., 2018; Gillwald et al., 2018), ICT expense had little impact on the digital activity of the seemingly most financially well-off participant. For those with more limited means, expense had a constraining influence on usage though not deterring engagement altogether. Costs either altogether prevented or gave participants pause in purchases like computers. It played a much smaller role in obtaining mobile phones and participants typically managed to acquire a device and some mobile credit or data. It was seemingly once reaching this stage that the affordability barrier became more significantly constraining – a trend also noted in prior studies (Gillwald et al., 2018; Research ICT Africa, 2015). Being cost-conscious limited the frequency of relatively basic ICT activity (for example phone calls and Internet browsing) for less digitally engaged respondents to a certain extent. However, it had the greatest constraining effect on those who were more digitally active, in that it limited the frequency of more sophisticated, data-intensive activity (particularly streaming of multimedia). This constrained the recreational benefits participants drew from ICT and the economic benefits for self-employed interviewees.

- ***Lack of interest, perceived relevance and awareness of ICT***

A few participants claimed that they simply had no interest in furthering their fairly limited use of ICT beyond basic communicative features. It seems that this was partially caused by the view of the self and traditional way of life as not compatible with modern advancements. However, each of these women were a little curious about at least one particular digital activity that they saw as potentially beneficial to a specific area of personal interest. This suggests that it is not so much a lack of interest as failing to see the relevance and usefulness of technology that limited the digital engagement of these women. This conclusion is in line with reports suggesting that a lack of perceived relevance or value, accompanied by a general lack of interest in ICT, is intertwined with a lack of awareness of its uses and potential benefits (The Economist Intelligence Unit, 2013). Lack of awareness among participants ranged from limited knowledge of the possibilities and benefits of the Internet among users, to an offline interviewee unfamiliar with more basic ICT concepts and functions.

- ***Availability of time for ICT usage***

Lack of time had a significantly limiting impact on ICT usage for a participant with a particular set of circumstances. She was married and lived with her husband; had young children; was employed full-time in a position requiring relatively little use of ICT; was raised in a cultural context with deeply entrenched gender norms and; bore the brunt of domestic and childcare responsibilities with little support from her husband or extended family. The interaction of these factors resulted in time constraints, which limited the frequency of ICT activity perceived as having a low priority. Time constraints posed a challenge to undertaking skills training for another participant. However, considerable support from her extended family made this possible.

- ***The effect of literacy***

The findings revealed a relationship between the participants' level of literacy and their digital activity. While having no notable impact on the ICT usage of the respondents with some level of high school education, social media engagement and online self-expression made a participant who had only very basic literacy very self-consciousness. In the case of another participant – the only Internet non-user – having no education and being illiterate profoundly affected the manner in which she engaged with ICT, including the most basic features of her mobile phone. The findings support the literature (Deen-Swarray, 2016) that found that lower level of education and literacy had little impact on mobile ownership, but was influential on Internet adoption and engagement.

- ***Resistance from a male partner***

A number of interviewees, across age groups, faced some opposition from their partners in using ICT. The resistance from males was rooted in suspicion that it would be used to communicate with other men and the concern that ICT might effect change in longstanding, traditional gender norms and power relations. Findings suggest that this barrier may be more significant where there is stronger investment in such socio-cultural norms and internalised beliefs of distinct roles for men and women. Resistance to women's digital participation may be an attempt to re-establish cultural norms believed to be slipping away. Opposition to women's ICT usage resulted in some conflict in relationships and was the main reason for one participant limiting her digital engagement despite her own wishes.

- ***Environmental constraints: Theft and assault***

High levels of crime impacted on ICT usage and was found to be a particularly significant issue for participants in Khayelitsha and Mitchells Plain. This did not deter participants from owning technology, but influenced their selection of devices and digital behaviour. The risk of assault during a robbery caused at least one interviewee significant anxiety and led her to travel without her devices whenever possible. This effectively negates some of the main perceived benefits of the phone, namely its mobility and function as a safety resource if required.

- ***Concerns and negative perceptions***

Despite the largely positive view of ICT, participants held a host of concerns including distrust of online security, apprehension regarding privacy and exposure on social networks, and scepticism of the influence of technology on society. One reason for this scepticism related to a widely shared perception that ICT had disrupted traditional interactions to the detriment of relationships. A few of the more knowledgeable interviewees showed some unease about the recognised inevitable future impact of technology on jobs and concomitantly the livelihoods of their families. Concerns and negative views had caused a number of participants to avoid Internet banking, social media and having a television in their homes. The most notable effect was the cautious manner in which most interviewees approached their online activity, particularly with regard to sharing personal content or opinions.

- ***The effect of gendered identities, norms and perceptions***

Gender was not always perceived by interviewees as having any relation to ICT. However, two-thirds of participants (eight of 12) reported females in their communities as the less frequent and/or skilled ICT users. While prior research had not revealed significant gender differences in ownership of Internet-enabled phones in Mitchells Plain, Khayelitsha and Saldanha Bay (Research ICT Africa, 2015), it was clear from participants that there were gender disparities in the use of ICT rather than in access. Their narratives alluded to the gendered nature of socialisation and differences in expected behaviour favouring digital engagement of males. This was most evident for respondents – particularly black women in Khayelitsha – in the heavier burden of domestic responsibilities assigned to females that limited their time for ICT exploration. An interesting factor which emerged was the subtle or indirect influence of character traits associated with, instilled in, or expected from males or females with regard to digital engagement, including: adventurous, rebellious boys versus conservative, obedient girls, which benefitted boys in the restrictive computer class setting; independent men versus dependent women, which encouraged men to develop their skills so that they would appear self-sufficient; and the notion of women as being clean and neatness of women conflicting with a misperception of ICT professions as "dirty".

Respondents explained a mentality within their communities that ICT is not viewed as *for* men, but more sophisticated usage tends to be *associated with* men. Specifically in a work context, ICT professions are perceived as "a man's field". It was suggested that these views are strongest amongst lower socio-economic groups as traditional gender norms were believed to be deeply embedded within lower educated groups. Furthermore, several interviewees – all relatively younger women – were inclined towards a perception of men as inherently superior or better suited to ICT while females are fearful and lack interest. These negative views appeared deeply embedded and taken for granted as factual, affecting one participant's belief in her capability as a woman even after successfully completing digital skills training. The detrimental beliefs had seemingly never previously been reflected on or challenged. More digitally adept respondents believed these views were reinforced by females observing men dominating ICT careers and studies and that there has traditionally been less of a focus to educate women and girls on the growing importance of technology in society beyond mere social functions, or explicitly make them aware that sophisticated digital engagement is in fact entirely appropriate for them as females. It is interesting that some of the more digitally competent interviewees were raised by parents who encouraged their advancement as females (whether in a general context or specifically in the digital space).

Finally, contrary to the above, one respondent believed that gender-based norms in fact made ICT a female-oriented resource. Her rationale was that it assisted in carrying out existing gendered activities and expected female duties (for example mothers helping children with homework).

6.4 OVERVIEW OF MAIN FINDINGS

The study findings showed that all participants had personal access to an Internet-enabled device and thereby the opportunity to engage with ICT and the Internet. However, such access did not always translate to usage. Several women made little to no use of the Internet. It is worth noting that the only interviewee to have never gone online (and thus largely digitally excluded) was also the one most clearly living in conditions of hardship. This reinforces the need for digital inclusion efforts for the most vulnerable groups, even within the broader category of women in marginalised communities. Regardless of extent of use, all respondents shared a strong attachment to and dependence on ICT, specifically their mobile phones, which they had embedded into their daily living. What varied significantly were the reasons for these relationships with their devices – in other words, the roles and meaning of ICT in their individual lives.

The literature has generally discussed women's ICT usage in terms of the strong association of females with social applications of technology (Anderson, 2015; Bujala, 2012; Gillwald et al., 2018; GSMA, 2015; Haight et al., 2014; Joiner et al., 2005, 2012; Roux & Dalvit, 2014). The digital behaviour of interviewees in both the youngest and oldest age categories is clearly aligned with this popular narrative. However, the behaviour of participants in the mid-age range (30 to 45 years) debunks this stereotypical association of women with the social paradigm of digital activity. These participants – who fell within the life-stage where having relatively young children, being married and working fulltime are common, if not typical, characteristics – were largely pragmatic and task-oriented ICT users, adopting activities which serve a functional, productive or economic purpose. The findings thus support the notion that there is merit in viewing digital engagement through the lens of variations in general life-stages (Brotcorne, 2016; Helsper & Reisdorf, 2016).

Professional goals were, therefore, an important driving force to Internet engagement for interviewees and certainly the only reason for participants having undertaken formal training. On the other hand, the findings strongly correlate with literature advising against undervaluing non-economic use of ICT (Huyer et al., 2005; Zainudeen et al., 2010). This, in fact, carried the most meaning for many respondents in giving them a feeling of emotional support, a sense of security in high crime areas, and in maintaining long-distance familial relationships or drawing on social capital in contexts where this is especially critical. Besides socially-oriented activity being the critical entry

point to Internet adoption for many interviewees, it must also be noted that platforms traditionally viewed as 'social' were used far beyond this context and are in fact reflective of the broader range of (informational, recreational, professional, educational and mobilisation) purposes for which respondents used ICT. This supports the warning given by some researchers that it has become difficult to separate dimensions of usage or to make neat distinctions (De Silva et al., 2011; Zainudeen et al., 2010).

A wide range of factors emerged as challenges to the greater digital participation of interviewees. Lack of ability – both real and perceived – together with lack of confidence was perhaps most significant. It negatively impacted most interviewees regardless of age, education and employment status. This was closely related to the challenge of poor social support circles. The findings are consistent with the literature which argued that the 'second-level' factors impacting usage add to, but do not replace, the issue of access (Helsper & Reisdorf, 2016). While the skills barrier limited the range of digital activity of participants, often preventing more advanced usage, the challenge of affordability of Internet costs was most influential for those already more digitally competent, in limiting their frequency of engagement in more sophisticated, data-intensive activity. Both barriers thus limit the greater transformational and empowering benefits of technology. However, costs had a particularly hindering effect on women with the awareness, competence and desire to fully capitalise on potential benefits. Apart from such awareness and several other barriers, time constraints, poor literacy and resistance from a male partner emerged as having significant influence on ICT activity, though affecting a smaller number of participants than ability or affordability.

It was clear from the findings that the women live in highly gendered environments. Socially constructed gender norms and roles were generally embedded into the identities and lives of participants and emerged as intricately underlying some of the previously mentioned constraints. For example, socio-cultural gender inequality was fundamental in the time constraints and in the power dynamics and resistance they faced from male partners. Findings also indicate that gender identities and traits indirectly disadvantage females in the digital context. This accords with the literature illustrating ways in which the concepts of masculinity and femininity have intersected with ICT to the detriment of females (Cheryan et al., 2015; Gadio, 2001; Mubarak, 2014). It is a matter of concern that perceptions detrimental to the enhanced digital participation of females – thus fuelling digital gender divides – were reportedly prevalent in the communities and had been internalised by some interviewees. This includes association of sophisticated ICT activity with males and the persistence of women's beliefs in the essentialist theory which considers men inherently better suited to technology (Fallows, 2005; Satapathy, 2014). That these beliefs emerged among younger

respondents suggest that the digital gender divide in young generations may be more problematic than had been implied in some of the research (ITU, 2016; World Wide Web Foundation, 2016).

To a very large extent, participants were moulding ICT to fit their existing offline activities and needs, thus essentially capitalising on ICT "to seek solutions to problems or tips that will make their lives easier" (Wilson & Lawan, 2015, p. 60). Alleviating women's very practical challenges and needs is of course the main envisaged purpose of ICT (Kalani et al., 2013). At the same time, simply slotting ICT into gendered activities allows technology to be used in the perpetuation of existing socio-cultural inequality. Examples of this emerged in the study where ICT was implemented in carrying out culturally expected 'female duties'. It is important to note the finding that not all participants necessarily object to the typical social order and some seem content being dependent – both in and out of digital contexts. These women's experiences with ICT clearly differ from the liberation attributed to the mobile phone in certain research as a "symbolic representation of our transition from dependency on males to self-dependency" (Balasubramanian et al., 2010, p. 204). However, there were also respondents tremendously frustrated with the status quo of gender relations and exerted their agency in using ICT to uplift themselves and other females in their communities. Others were keen to capitalise on ICT in various economic and educational dimensions, while still adhering to and retaining traditional cultural norms. These differences in women's experiences and perceptions relate to a critique of feminist writing and standpoint theory: while the focus on the socio-political context and gendered power structures in society is important, these perspectives should also not treat women as passive victims and ignore individuality, agency and diversity between women (Mauthner, 2014).

The respondents were thus not only diverse in employment, education, age, and other socio-demographic variables which have proved related to their digital activity, but also more intricate elements like worldviews and mental models, which impact on their perceptions and experiences with ICT. An essential finding of this study regarding the digital engagement of participants is thus consistent with the literature reporting that women do not behave as a monolithic group in their digital behaviour and it is difficult, if not impossible, to define an average female ICT user (Huyer et al., 2005; Intel, 2012).

6.5 SUMMARY OF THE PHENOMENON

All participants in this study – women residing in marginalised communities – had strong attachments to ICT. They had embedded it into their daily living and integrated it into their own individual contexts, to fit their needs, activities and ambitions. Thus given the diversity in the

women's lives outside of the digital context, the meaning of ICT and the areas of life in which it had been interwoven differed vastly among respondents. To various extents, ICT had touched and been integrated into their social, economic, educational, political, cultural, recreational and spiritual dimensions of life. An array of barriers impeded the women's digital participation, including: digital skills and confidence, affordability of ICT, social support systems, awareness of personally beneficial opportunities, time constraints, literacy, privacy and security concerns, negative views of ICT, high crime in the community and detrimental effects of socially-constructed gender norms, roles and identities. The extent to which each woman was affected by these barriers were typically related to and often determined by a mix of socio-demographic variables (age, employment, education, relationship and child status, household structure etc.) and more intricate elements like cultural upbringing, worldviews and mental models. Overall, the women live in highly gendered environments and as such, this is the context in which their experiences with ICT occur and their perceptions are shaped. Their digital experiences, perceptions and the barriers they face in participation are thus often affected by the norms, social structures and dynamics of these gendered environments.

6.6 RECOMMENDATIONS

In accordance with a fundamental objective of feminist research to effect broader social change and social justice (Doucet & Mauthner, 2006), the main envisaged impact of this study is to contribute towards narrowing socio-cultural gender inequality and empowering women in marginalised communities. This is undoubtedly a complex ambition and such change would require long-term co-ordinated actions from a wide range of stakeholders, from policy to grassroots levels. Informed by the findings of this study, this section offers recommendations for policies, strategies and concrete practices in view of enhancing the digital inclusion of women in marginalised communities.

- Stakeholders involved in women's empowerment must recognise that women live in gendered environments, which are carried with them as internalised perceptions of their identities, roles and capabilities. Digital inclusion projects implemented in the absence of gender considerations may be successful in enhancing the digital participation of some women, yet fail to change deeply internalised self-perceptions of females as inherently less capable and therefore not have the desired empowering impact. **The design and implementation of interventions must have a gender-sensitive underpinning** that recognises a relation between ICT and gender.

- Stakeholders should **recognise the critical role of the mobile phone as the primary or sole digital device used by women in marginalised areas and design interventions accordingly**.

Providing free access to Wi-Fi in trusted local spaces, which women already frequent and feel comfortable in (for example, churches, community centres and business hubs), would likely reach more digitally excluded women than relying on conventional e-centres. Targeting typically female-friendly/dominated local spaces may be the best course of action.

- It is critical to **ensure that women understand the direct relevance and usefulness of ICT in their own lives** in order to generate interest and change pre-conceived negative attitudes. An introduced application should ideally be as specific as possible in relating to digital activities which appeal directly to the needs and context of the individual. Awareness-raising efforts should encourage non-users and existing Internet users to expand their range of benefits. Campaigns targeting mainly digitally excluded women should not exclude important older communication mediums like television, radio and word-of-mouth in their awareness-raising strategies.

- **Skills development, educational and awareness-raising efforts should reconceptualise the idea of ICT** via clear messaging which: refutes perceptions of sophisticated ICT usage as a male domain; assures females of their equal capability and; explicitly encourages female digital participation. The findings suggest that merely prompting women to reflect on the internalised beliefs, which are often taken for granted as being factual, may initiate a change in thinking. While particularly targeted at females, messaging should be directed at males as well in order to change mentalities at a societal level and increase support for female digital participation. These awareness measures should ideally be implemented in the school system to counter gender bias and detrimental perceptions as early as possible.

- Skills development is sorely needed for women in marginalised communities. **Training initiatives must go beyond improving ability and operational skills. They must instil and reinforce confidence**, as well as remove the myth that ICT is overly complex and something to be feared. A few areas emerging from this research which require particular focus in skills development include: information-seeking and critical thinking; knowledge surrounding online safety, security and responsibility and; understanding of transferable skills and the need for lifelong learning.

- Even within the broader demographic of women in marginalised communities, **digital inclusion interventions should be tailored to particular groups**. Outreach is particularly necessary for older, low income, poorly educated women. It is necessary to recognise the diversity of women in their lifestyles, interests, needs and the barriers they face in digital participation. Considering

typical – though not fixed – life-stages may be useful in this endeavour. Tailoring intervention to particular groups includes making strategies locally relevant to women's contextual settings.

- Having ICT introduced in a simple way as an innocuous or fun activity, through informal, comfortable relationships may reduce anxiety and perceptions of technology as overly complex. **Incorporating social support systems in digital interventions** may thus be beneficial. Additionally, **recruiting local – preferably female – community members to serve as digital intermediaries** could have particular impact among older digitally excluded women, and could change the mentality of young girls with detrimental views of ICT. **Exposing girls to female ICT professionals** may inspire them and debunk harmful stereotypes.

- Teaching must occur in a **patient, supportive, understanding and encouraging learning environment**. Repeated, slow-paced instruction under close monitoring is often necessary.

- **Attention should be given to women who struggle with literacy**, to enhance meaningful use of their devices by introducing them to suitable applications and assisting them in usage. This would also require cost-friendly applications targeted at and tailored to this demographic.

- As stated, addressing the gender inequality, which contributes to a barrier like lack of available time will not be realised in the short-term. However, training initiatives can **implement practical steps to support women who may have difficulty attending sessions**. Hosting training in spaces where childcare activity or services could be offered (for example, local libraries) or integrating more informal, flexible learning measures (for example, using local digital intermediaries or members of the social support system) may help.

- After closely reviewing the survey instrument used in the Research ICT Africa (2015) quantitative study, it became evident that although salient issues (according to the findings of this qualitative PhD) had been included in the survey questionnaire, they had not been directed to some of the most appropriate contexts. This was most notable in the discrepancy between questions posed to Internet users and non-users. For example, while this PhD study has showed lack of skills and time to have significant constraining influences on Internet using participants, the Research ICT Africa survey instrument was designed to pose questions related to these barriers only to women who had never been online. It thus ignored an important component of the phenomenon of women's ICT participation. **Considering the often more nuanced findings of qualitative studies when designing and refining quantitative survey instruments, would maximise the richness of data** on this subject, particularly in under-researched areas.

6.7 LIMITATIONS OF THE STUDY

The small number of participants as well as the method of purposive sampling employed means this sample cannot be considered as representative of the broader population of women in marginalised communities and the findings cannot be generalised. However, generalisation was not the goal of this feminist-phenomenological study, which sought depth, rather than breadth of data. IPA approaches could also be criticized as limited in their typical homogeneity of sampling. While this study consisted of women in three specific marginalised communities, the participants are diverse in a range of socio-demographic categories. The sample was thus intentionally designed to take account of diversity of women in such communities while exploring the phenomenon.

A further limitation of this study was the issue of language. Each of the twelve participants selected were able to converse in English. Respondents whose first language was Afrikaans were encouraged to switch to their mother tongue during interviews if ever they had difficulty expressing themselves (though they did not often do so). Given the researcher's inability to speak Xhosa or Zulu (primary languages in Khayelitsha), the same opportunity could not be offered to participants with these as first languages. While rich data emerged from each individual interview, it is possible that greater depth could be reached had all the women been able to express their thoughts in their first language. Furthermore, it is also possible that language may present a more significant challenge to ICT usage for non-English speaking women than it did for those with conversational fluency. Future studies of this nature, should consider conducting each interview in the language of the participant's choice.

6.8 CONTRIBUTION AND SIGNIFICANCE OF RESEARCH

The central contribution of this study lies in the fresh and interesting insight added to a very limited body of knowledge on the lived experiences of digital engagement of women in marginalised communities in the Western Cape of South Africa. The study is important given the paucity of research not simply *on* but *for* and *giving voice to* women in these areas. This has allowed for uncommon in-depth accounts of their own experiences with ICT, as well as their understandings and perspectives of a potential interplay between ICT and the construct of gender, within the context of their own environments.

The deep insight gained from this investigation complemented a rare quantitative data-set on ICT access and usage in Saldanha Bay, Mitchells Plain and Khayelitsha and filled in the gaps on women's lived experiences with ICT which the survey was unable to. The result has been a more holistic

depiction of the digital engagement of women in these three specific marginalised communities of the Western Cape. This insight is particularly useful and timely given the provincial government's targeting of these particular communities in its digital strategy and interventions. Furthermore, the nuance and subtleties revealed between the experiences of individual women in marginalised communities – who are often discussed as a homogenous group – is arguably the study's most significant contribution to the body of knowledge in the area. The research findings revealing a complex and, at times, obscure interplay between gender and ICT are important at the current stage where statistics indicating narrowing gender divides in ICT access in South Africa (Research ICT Africa, 2015) may leave doubts as to the significance of gender issues in ICT spaces. The findings of this qualitative study can be useful in informing future survey instruments and potentially redefining indicators used to measure ICT access, usage and digital gender inequality in South Africa.

The insights from this qualitative study may also have implications on existing related theories. The Unified Theory of Acceptance and Use of Technology (UTAUT) model, for example, identifies gender as a key moderator on a number of direct determinants of user acceptance and usage behaviour. One key hypothesis is that 'performance expectancy' of a technology will be a more significant determinant for men – and particularly young men – given that males are viewed as more task-oriented users, partially due to traditional societal gender roles resulting in differing priorities for men and women (Venkatesh et al., 2003). While encouraging that the model aims to position gender as broader than simply biological sex, the findings of this PhD study may put into question the premise that traditional gender roles lead to less task-oriented female ICT users. On the contrary, the findings suggest that performance expectancy may be a significant determinant for certain young mothers who are pragmatic ICT users, adopting technology which would be most useful in increasing efficiency and productivity. This research may thus bring into question the way in which women and their experiences are defined and understood in relation to ICT in theoretical models.

Both feminism and phenomenology as distinct schools of thought are underused in technological research fields. The combination of the two is even rarer. This study has thus contributed to the scant body of work (both globally and nationally) undertaking ICT research from a feminist phenomenological perspective. Approaching the study through this specific lens has enabled the investigation of experiences with technology in an in-depth, multifaceted and comprehensive manner (Cilesiz, 2011), rendered visible a tacit masculine norm embodied in the traditional epistemology of computer and information systems (Adam & Richardson, 2001) and (in its commitment to emancipatory values) brought to light often hidden viewpoints of subjugated groups (Webb & Young, 2005). The feminist phenomenological perspective ensured that each individual

woman's experiences and views were placed at the centre of inquiry, which allowed for fresh insight into the field of ICT usage research. The study is thus important in its demonstration that such an approach is not only compatible with the discipline but can add great value and new understanding to the insufficient knowledge of ICT experiences of marginalised groups in South Africa.

Finally, "[using] research to help participants understand and change their situations" (Lather, 1991, p. 226) is an objective of feminist research. It is hoped that participating in this study may have made some small change in the lives of the participants by making them aware of the previously unknown possibilities of technology, increasing their level of comfort and motivation to explore with ICT, and initiating a process of more reflective and critical thinking on taken for granted, detrimental beliefs.

6.9 SUGGESTIONS FOR FURTHER RESEARCH

Further research is necessary to explore the influence of intricate socially constructed gender norms and identities on the digital participation of women and girls. It would be valuable to do more, focused investigation in the same sort of geographical areas as were used in this study, as well in other settings such as the rural provincial areas, where the social norms may be different.

This research was focused on women in marginalised communities. It would be interesting to explore the lived experiences of men in these communities with regard to these socio-cultural issues – not least of which since their views, attitudes and behaviour impact on the digital participation of women.

Various issues emerged from this study, which could not be fully explored given the scope of the research. These issues can be identified by reading the discussion chapter. Examples include the diversity in learning styles of women and the related factors; the lived experiences of ICT of illiterate women; and the relationship between social media and the self-esteem of young women.

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APPENDIX A:

INTERVIEW SCHEDULE

1. ***Can you tell me a bit about yourself?***

   Open question then probe on age, hometown, education, occupation, relationship status, children

2. ***Can you tell me about a typical day in your life?***

3. ***Can you explain to me from your own understanding what these technological things like computers, phones and the Internet are?***

4. ***What do these things mean to you? How do you feel about them?***

5. ***Do you use ICT?***[19] ***Can you tell me about the types of things you do with it?***

   Encourage interviewee to speak freely then probe on some of the following areas that haven't been mentioned ***considering the context of what the person described as her typical daily life experiences****:*

- ***Social (e.g. maintaining relationships with family and friends; making new acquaintances; social media etc.)***
- ***Work/Economic (e.g. for work/business/income earning purposes; how do you go about looking for work?)***
- ***Information seeking (e.g. news, weather, government information, health concerns, directions, fact checking, politics, educational information etc.)***
- ***Entertainment and leisure (e.g. watch a video, listen to music, take a picture, play a game, go to a hobby/humour website, read books or magazines etc.)***
- ***Daily tasks (pay bills, banking, alarm, help with homework, any other apps that you use)***
- ***Civic participation (e.g. Do you participate in any political, community or other groups? Does any of your activity in this happen through ICT?)***

[19] The acronym is explained to the participant before the interview begins

- ***Safety: Does having a phone relate to safety at all for you? How so?***

6. ***If I took your phone/computer away from you for a few days or a week, how would you feel?***

- ***What would you miss most about it?***

- ***Is there anything you dislike about your phone?***

7. ***Does anything hold you back from using ICT more than you do now?***

Encourage interviewee to talk about the challenges she experiences then probe on areas that haven't been brought up:

- ***Costs and physical access***

- ***Awareness (this will likely emerge throughout interview but ask: 'How do you normally hear about new uses of technology? Was there anything I mentioned earlier that you hadn't heard of before?')***

- ***Ability, knowledge and confidence (encourage talking about views regarding her own ability, skills development process – how does she learn and/or from who)***

- ***Security, safety, privacy fears***

- ***Available time to use ICT***

- ***Content (Is there enough online to interest her?)***

- ***Language and/or literacy difficulty***

- ***Electricity, signal,***

- ***Crime in area (theft of devices)***

8. ***Would you say that there are any differences between men and women in society?***

Probe areas: How are they the same/different; do they have different roles; what are her views on this; what is the gender dynamic in her own home; what does she observe is the gender dynamic in her community?

9. ***Do you think the Internet is just as much for men and boys as it is for women and girls?***

10. ***Do you think people in your family and your community feel the same way?***

11. ***Have you observed any differences in the way men and women use ICT?***

12. ***Do you feel that girls and boys are equally encouraged to use ICT?***

13. ***Do you feel free to do whatever you want with your phone or on a computer or the Internet? Has anyone ever questioned your use of a phone or computer?***

14. ***If applicable: Do you and your husband or boyfriend ever use each other's phones? Has there even been any issue related to this?***

If not already revealed in discussion:

15. ***Do you remember when you got your first phone? What made you decide to get one?***

16. ***Do you remember when you first started using social media? What made you start using it?***

17. ***On Facebook, do you post things and comment on things?***

APPENDIX B:

INFORMATION SHEET

Exploring the access, usage and perceptions of ICT of women in marginalised communities in South Africa

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The study information sheet

A pertinent challenge in ensuring digital gender equality lies in the fact that to date, comprehensive information and knowledge of a gender-based perspective of ICT use is very limited. The multifaceted gender-based factors related to usage may leave many at various levels of exclusion. Such factors include women's additional responsibilities of unpaid housework and childcare, physical and financial restrictions on access and ownership, constraining social norms, gender roles and societal beliefs and attitudes, higher rates of illiteracy and lower levels of support for women. Ignoring these factors will potentially serve to increase inequality and push many women further into exclusion. This study intends to contribute towards the body of knowledge, with a particular focus on marginalised areas. The outcome of the study could potentially be relevant for informing policy and strategies regarding South Africa's digital inclusion agenda.

This study therefore aims:

1. To explore the experiences of ICT access and usage of women in marginalised communities.

2. To explore and understand the factors which play a role in the access to and usage of ICT by women in marginalised communities.

APPENDIX C:

CONSENT FORM

University of the Western Cape

CONSENT TO PARTICIPATE IN RESEARCH

Title: Exploring the access, usage and perceptions of ICT of women in marginalised communities in South Africa

You are asked to participate in a research study conducted by Ms Carlynn Pokpas, a Doctoral student at the University of the Western Cape.

This research study is conducted towards the completion of the researcher's PhD (IS) dissertation at the University of the Western Cape.

You were selected as a possible participant in this study because you are a female resident of Khayelitsha.

The researcher has obtained the permission from the University of the Western Cape to conduct this study.

1. PURPOSE OF THE STUDY

The main objective of the study is to explore the experiences of ICT access and usage of women in marginalised communities.

2. PROCEDURES

If you volunteer to participate in this study:

1. I, the researcher, will come to a location in your town at a date and time convenient to you and conduct the interview face to face.
2. You will realise that the interview is semi-structured and will enfold depending on your answers.
3. The interviews will be recorded using the tape recorder, with your permission.

3. POTENTIAL RISKS AND DISCOMFORTS

No potential risks are envisaged at this stage. However, if something might come up, it will be dealt with in a sensible and sensitive manner.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

This study will aim to understand the experiences of ICT usage of women in marginalised communities in view of contributing to strategies to enhance women's digital participation.

5. PAYMENT FOR PARTICIPATION

No monetary payments will be made to the participants. Each participant will receive a small gift voucher as a show of gratitude for their time and participation.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. Confidentiality will be maintained by means of referring to the interviewees as participant and by means of themes and categories that will be identified and used in the analysis and discussions of the findings and the outcomes, in the research report, the thesis, and in conference papers and articles that would be submitted for possible publication in academic journals.

The researcher further pledge that any information given by participants will be handled in the strictest confidence, and that the information interviewees give will not be used to reflect negatively on them in any way.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions and still remain in the study.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact me at (021) 903-0710 (h); (cell) 079 936 6939; e-mail 2443208@myuwc.ac.za

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Dr Leona Craffert, Director of the CoLab for eInclusion and Social Innovation, Goldfields building, UWC, or telephonically, (021) 959 3580; or via e-mail at lcraffert@uwc.ac.za.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was explained to me, the participant by Ms Carlynn Pokpas in English. I have satisfactory command of this language. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

_____

Name of Subject/Participant

_____

Name of Legal Representative (if applicable)

_____ _____

Signature of Subject/Participant or Legal Representative **Date**

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to _____ [*name of the participant].* He/she was encouraged and given ample time to ask me any questions. This conversation was conducted in English and no translator was used.

_____ _____

Signature of Investigator **Date**

APPENDIX D:

FIGURES AND TABLES[20]

Table D.1: Gender of household member surveyed

Gender of household member					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	542526	44,1	44,1	44,1
	Female	687784	55,9	55,9	100,0
	Total	1230310	100,0	100,0	

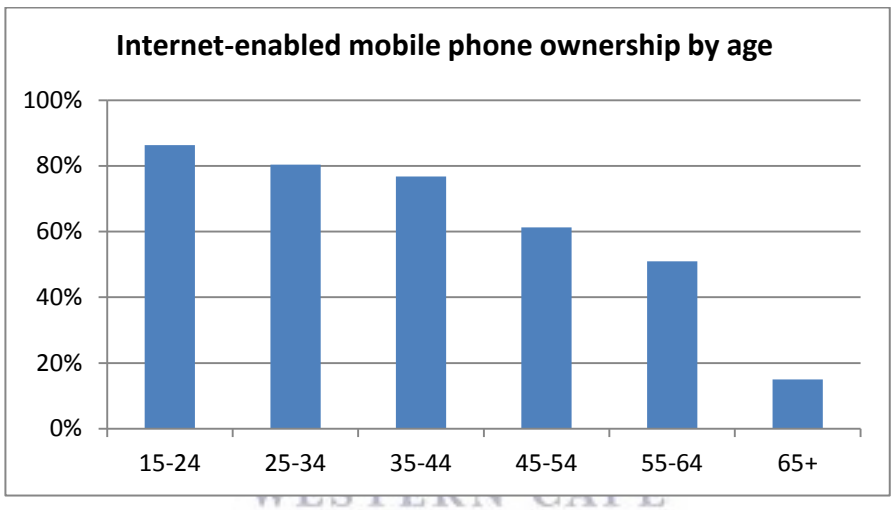

Figure D.1: Ownership of Internet-enabled mobile phone by age

[20] Data presented in all tables and figures in Appendix D was obtained from Research ICT Africa and re-analysed by researcher.

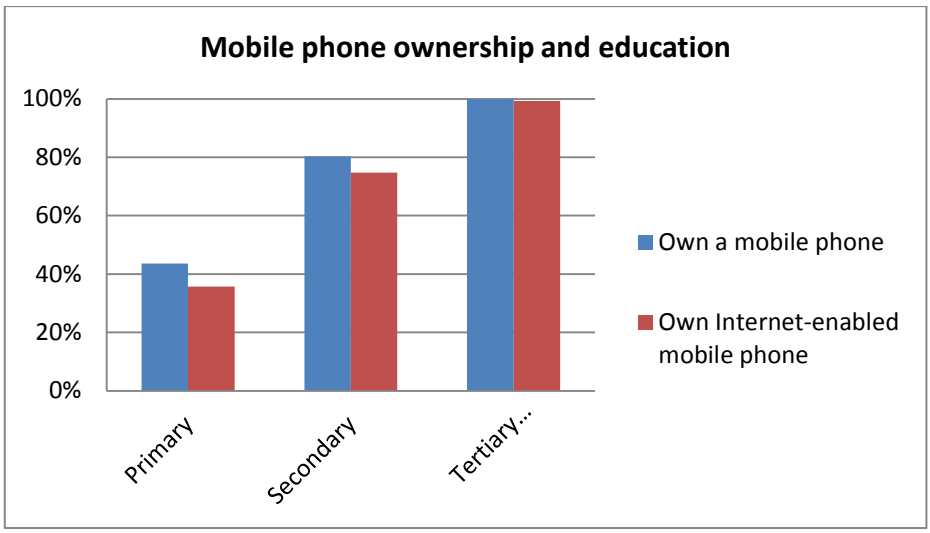

Figure D.2: Mobile phone ownership and education

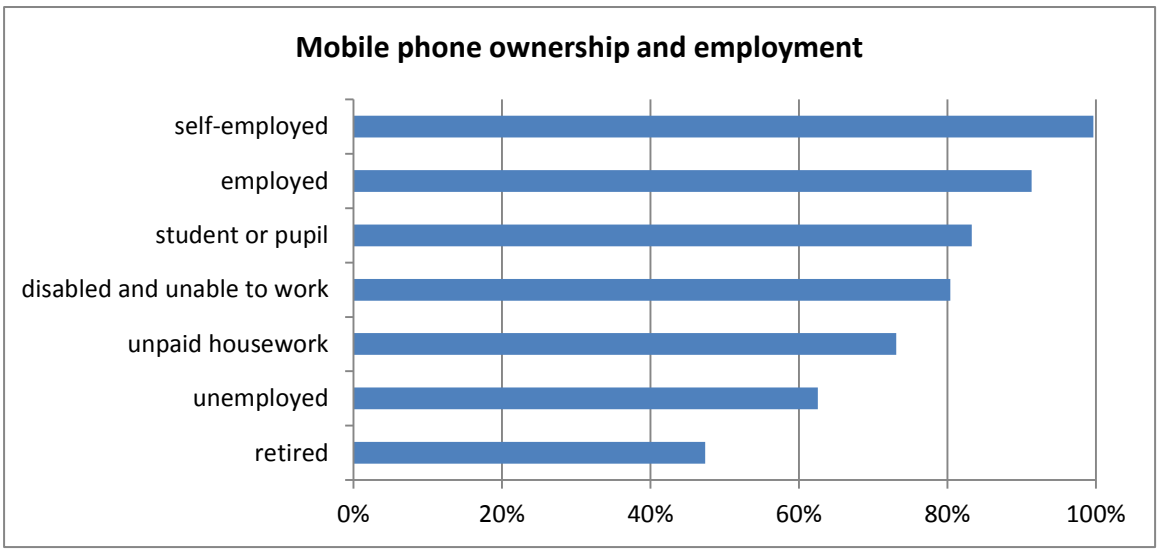

Figure D.3: Mobile phone ownership and employment

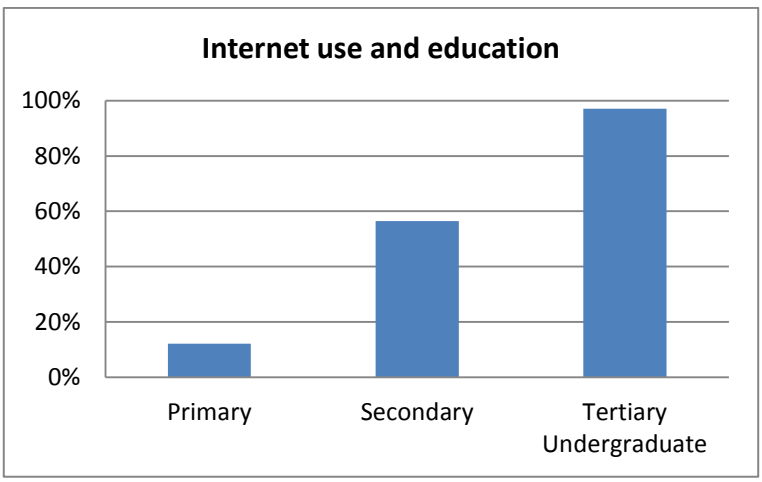

Figure D.4: Internet use and education

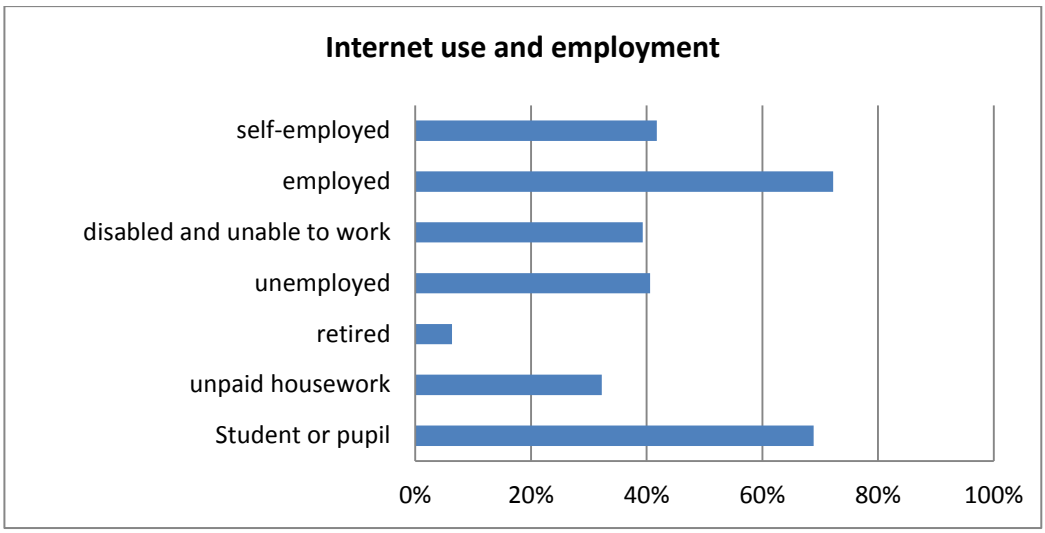

Figure D.5: Internet use and employment

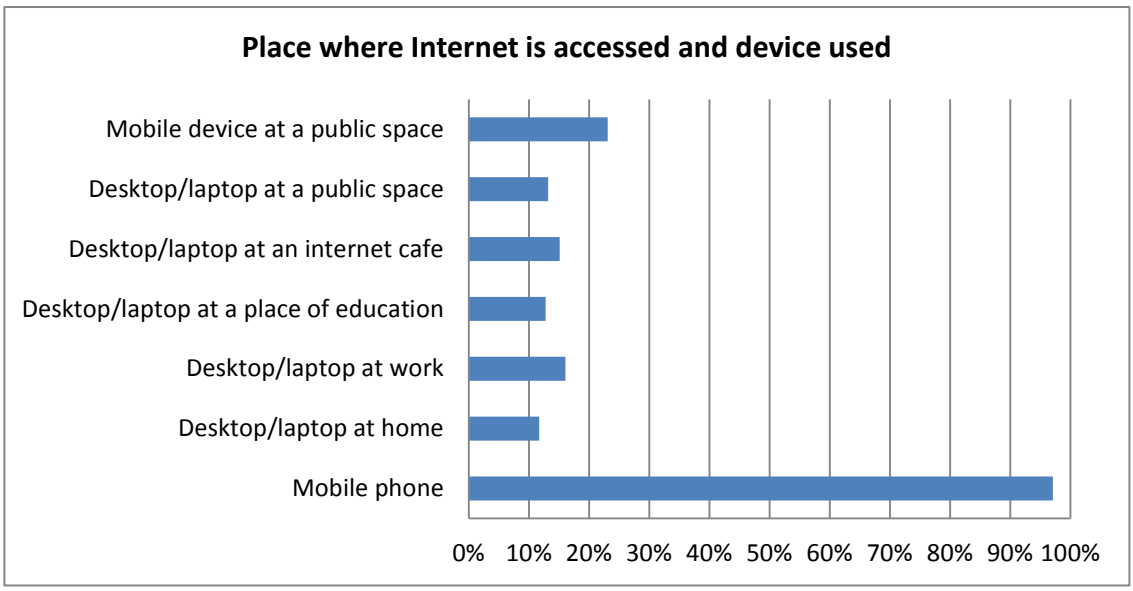

Figure D.6: Place where Internet is accessed and device used

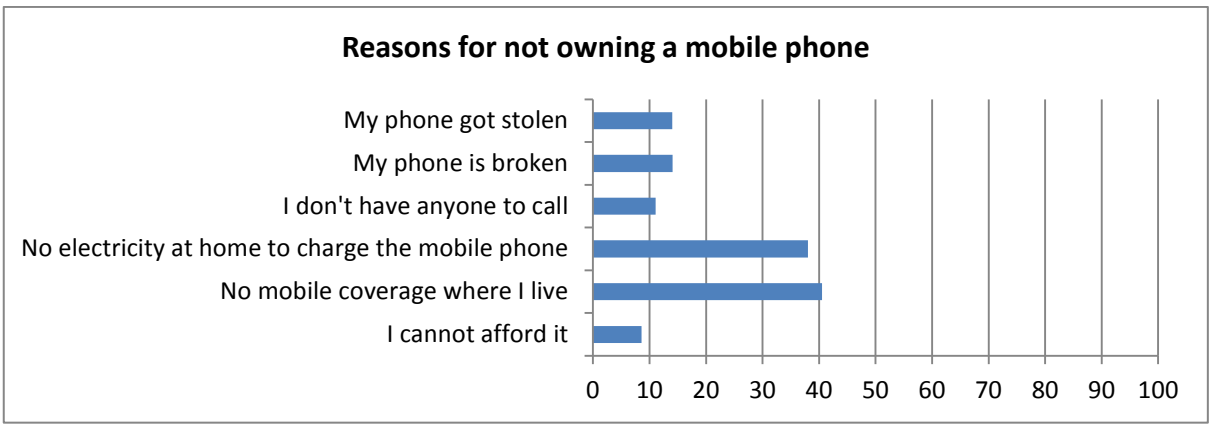

Figure D.7: Reasons for not owning a mobile phone