N Sekeleni
C Lesame

The dearth of feminist empirical research on women's active participation in the ICT sector: Critical reflections for feminist scholars

ABSTRACT

This paper seeks to create awareness of the need for research academics and practitioners involved in the ICT field collaborate in co-producing feminist empirical research studies that integrate theory and practice (evidence-based) when doing research on the circumstance related to women's entrepreneurship and intrapreneurship in the context of the Eastern Cape Province in South Africa, which is under scrutiny. The notion of cross-professional collaboration is triggered by recommendations extrapolated from a qualitative case study conducted on the ICT sector in the Eastern Cape, wherein the findings allude to a gap in empirical research studies employing feminist epistemological and methodological norms of inquiry in examining women's entrepreneurial and intrapreneurial activities. This paper advances the view that initiating a trend within the researcher community, where follow-up studies are conducted from research recommendations, will stimulate reflection and debate around empirically grounded feminist scholarship in an emerging and unexplored field of research, namely women's entrepreneurship and intrapreneurship, in both urban and rural settings of the ICT sector.

Dr Naledi Sekeleni is Senior Lecturer of Media Studies at the University of Limpopo, South Africa. She completed a doctoral study at the University of South Africa (Unisa) and this article is based on her study findings. Her research is focused on the advancement of women in business through the use of information and communication technology (ICT) and the development of progressive and gender-focused ICT government policies. Her other research interests are telecommunications and broadcasting policy development and implementation as well as gender studies in media. Dr Sekeleni also practices as an ICT small business owner in the Eastern Cape Province and therefore has an in-depth understanding of issues that the study investigated. She is Senior Lecturer in Media Studies at the University of Limpopo, South Africa. Prof Carol Lesame supervised Dr Sekeleni in her PhD study at Unisa and lectures in Media Studies at the University of Limpopo and Unisa. *We wish to acknowledge that the latter aspects of the research methodology (e.g., data analysis and thesis binding), were sponsored financially by the National Research Foundation (NRF) through the Unisa Women-in-Research bursary programme. We thank the NRF for their continued support of social sciences researchers and scholars.*

INTRODUCTION

The information communication and technology (ICT) sector, by its very nature, is an engendered environment imbued with disparities manifested in structural socio-cultural (Plant, 1996; Sekeleni, 2014; Wilding, 1998), economic (Wajcman, 2004; Wakunuma, 2013), socio-political (Gajjala, 2004; Fernandez & Wilding, 2003) and systemic entrepreneurial and intrapreneurial challenges that makes it a tough environment for women's meaningful participation in the sector.

Many research studies that have focused on the ICT sector through a feminist lens, describe the sector using gendered and stereotypical associations that depict it as a sector that is:

- male dominated (Allen et al., 2007; Haraway, 1997; Kutanis & Bayraaktaroglu, 2003; Wajcman, 2010), as revealed in the masculine terms (Wajcman, 2004) used to describe this field, such as, "boys club" or "man's world" (Sekeleni, 2014)
- marked by gender differences in occupations (Dlamini, 2012; Sekeleni, 2014; Women in IT Scorecard, 2015), as evidenced by women's declining representation (Kvochko, 2016; Lewis et al., 2007; Webb & Young, 2005), especially in key ICT decision-making environments (Mamabolo, 2016), where women find it difficult to break the "glass ceiling" (Cape Times, 2015)
- characterised by a conspicuous widening of the digital divide in ICT skills and usage between males and females (Douglas, 2016; World Economic Forum, 2013), which can be attributed to historic structural inequalities in the education system (across all levels), where girls or women, from both developed (Interface 3, 2015) and developing nations (Njoki et al., 2016; OFSTED, 2009; Whyte, 2010) still have limited access to ICT education
- notable for the marked differences in the "horizontal" and "vertical" employment of males and females (Bettio & Verashchagina, 2009; Ghoshal & Passerini, 2006; Al Sebaie, 2015), which is ascribed to the glaring gaps in the ICT skills of males and females (MICT SETA, 2014) as reported in a recent ICT skills survey (Schofield, 2016);
- characterised by patriarchal (Haraway, 1997; Paasonen 2005) and cultural (Teoh & Chong, 2014; Sekeleni, 2014) predispositions that encourage women's subordination within the sector in terms of their role and contribution (McQuillan, 2009; Minniti, 2010), which is often regarded as being of less significance (Ahl, 2006) compared to that of their male counterparts – a supposition rooted in a confluence of discriminatory practices (Sekeleni, 2014) that perpetuate induced insecurities on the part of women's capabilities to succeed in leadership and management roles.

Against this background, women's inevitable capitulation when confronted with such institutional and structural barriers – and their consequent subsequent exit from the ICT sector (Griffiths & Moore, 2010) – can plausibly be attributed to either the absence of gender mainstreaming policies or an ineffective implementation thereof. Recognising these gender biases and asymmetrical patriarchal relationships, in which gender discrimination comes to light, is a central theme underlying the findings of the case study informing this paper.

An increased understanding and awareness, from a feminist research point of view (Harding, 2007), needs to be created on issues and challenges confronting women's entrepreneurship and intrapreneurship in the ICT sector. However, the absence of feminist research academics and practitioners who conduct empirical studies (employing explicit feminist epistemology) on women entrepreneurial [intrapreneurial] activities in the ICT sector, has drawn attention to a gap in this subject field (Sekeleni, 2014). This is a missed opportunity for researchers to accumulate scholarship that documents women's "real" experiences, from their perspective. This speaks to entrepreneurship, and as such, "needs to be understood as a local practice in a specific context, and in which gendered power structures are key to shape specific entrepreneurship [intrapreneurship] experiences lived by women (Vossenberg, 2014:13).

However, against the background of the rhetorical commitment to bring about gender equality (South Africa, 2016), directed at levelling the playing field for women's active participation within the ICT sector, women's underrepresentation and marginalisation in the sector remain visible (Pines & Schwartz, 2008; Vossenberg, 2013). Women's invisibility can, plausibly, be attributed to the absence of gender disaggregated data (Hafkin & Hyer, 2006; Sekeleni, 2014). The absence of such information obscures women's visibility, and "without visibility there is no priority" (Hafkin, 2003:1) on women's issues and challenges. The lack of empirical research on women's entrepreneurship and intrapreneurship is a growing concern for most in the ICT sectors in many developing economies, as women's empowerment and developmental priorities are directed to other sectors.

This research paper therefore makes the case for research academics and practitioners to collaborate and actively promote feminist empirical research approaches (Busken & Webb, 2009; Sekeleni, 2014) when exploring women entrepreneurship [intrapreneurship] in the ICT sector. Critical to feminist epistemology are questions around the issue of how the voices of women can be heard (Charmaz, 2008; Shope, 2006), with what authority and in what form. Consequently, collaborative research between academics and ICT entrepreneurs could provide practical solutions to this knowledge gap.

1. RESEARCH ACADEMICS AND PRACTITIONERS: A BENEFICIAL COLLABORATION

Collaborations (Boules et al., 2016; Van de Ven & Johnson, 2006) between research academics and practitioners are not uncommon, but it is rare to find such partnerships in the ICT environment in the Eastern Cape Province, especially collaborations that have a clear feminist research agenda. There are assertions of a widening gap between the two parties – that is research academics and practitioners – which is attributed to various factors concerning issues such as:

1) Lack of rigor in methodology, which limits the chances of joint authorship, especially in innovation-related research and development projects, which is an untapped area for collaborations in this sector. From a funding perspective, collaborations in publishing could benefit research practitioners, who usually have small research budgets and therefore rely on funding from commissioned projects, which often compels them to redirect the focus of their research away from their research agenda.

2) There is a general perception that the mismatch in knowledge content produced by academics, is found to be too theoretical and often lacks an applied perspective and fails to keep abreast of emerging social feminist research issues. Collaborations where women's entrepreneurship and intrapreneurship is concerned could be beneficial for both research academics and practitioners, as they could leverage their theoretical and practical competencies to solve the current industry issues and challenges confronting women; and

3) There are limited numbers of postgraduate female students participating in empirically-grounded feminist research projects in ICT focusing on women's entrepreneurship and intrapreneurship. Such studies are relevant in terms of producing new knowledge, synthesising theory and practice that is relevant to the current industry.

4) Finally, from a career perspective, a more concerted effort has to be placed on promoting specific career guidance and mentorship programmes for women interested in taking on research as a speciality area, in both in academia and private practice (Boules et al., 2016; Husu & Koskinen, 2010; Thaler, 2010). It is also imperative to create a research platform that showcases women who have been successful in the sector and who can build a contingent of role models to women who are entering the ICT industry, so as to change gender biases that marginalise women's participation in core ICT research positions of responsibility (Castano et al., 2008).

Collaborations between research academics and practitioners, with respect to women empowerment, are in line with the feminist research approach, and this could be the start of a process to address the digital gender research divide in the ICT sector of the Eastern Cape Province.

2. EPISTEMOLOGY AND METHODOLOGY CONSIDERATIONS FOR RESEARCH ACADEMICS AND PRACTITIONERS

A shift towards feminist epistemology (Harding 1986) and research methodology (Harding, 1987; Hughes & Cohen 2010; Wickramasinghe, 2010; Webb & Young, 2005) norms of inquiry could enable research academics and practitioners to produce studies for women rather than on women (Reinharz, 1992). Studies for women implies knowledge generated "with women, by women, for women" (Goodey, 1998). It further implies the incorporation of the feminist researcher's reflexive role (Harding, 2007; Fonow & Cook, 2005; Hesse-Bibber, 2012; Mauthner & Doucet, 2003; Shope, 2006) in the co-production of knowledge (Harding, 2007; Fonow & Cook, 2005; Hesse-Bibber, 2012; Mauthner & Doucet, 2003; Shope, 2006), interpreted by the researcher from the participant's particular lived experience (Charmaz, 2006). The relationship between the feminist researcher and women is an important tenet of feminist methodology and should be one that refrains from presuming to know women's issues; but it should rather reveal an understanding of how the knowledge that is produced could benefit women, since feminist epistemology goes further than merely producing the knowledge, it also incites transformative action. Evidence

from empirical feminist research (Sekeleni, 2014) suggests that research studies produced for women, particularly in the ICT sectors of developing economies, is critical for reform in policy and programme design that is aimed at promoting women's entrepreneurship and intrapreneurship.

On the contrary, according to Pringle et al. (2000:26), studies produced on women tend to focus on "practical questions, establishing the causes and attempting to [institute] strategies to rectify the situation" (Pringle et al., 2000:26) and little emphasis is placed on the detached relationship between the researcher and the participant, which is limiting in terms of exploring women's issues in depth.

2.1 The relevance of feminist standpoint theory for women's entrepreneurship and intrapreneurship research

In view of the advocated shift towards feminist epistemology and research methodology norms of inquiry when examining women's entrepreneurship and intrapreneurship in the ICT sector, employing a theoretical lens (Hartsock, 1983; Harding, 2007; Anderson, 2015) would be fitting as it advances relevance and rigour in epistemologies that centre on gender perceptions and feminist viewpoints that inform empirical inquiry relating to "situated knowledge" claims (Haraway, 1988). Situated knowledge implies that the knowers (women) of knowledge, usually the oppressed and marginalised, have an epistemic privilege of lived experiences pertaining to structural barriers that they are confronted with in the ICT sector, different to men – from a privileged position. In view of the feminist standpoint, which moves from the premise that the starting point for knowledge production should be anchored in marginalised groups (Harding, 2007), it is clear that this theory holds a firm position on advocating for the promotion of the voices of exploited and marginalised groups, whose experiences hold true, based on their lived experience (Intemann, 2005, 2010). The epistemic of privileged access to knowledge suggests that the marginalised are the source of knowledge production (Harding, 1986, 2007) and, therefore, ought to be treated with privilege when analysing issues of social change, based on their "true" lived experiences (social gender inequalities.

The purported view that the knower's (women's) experiences, in themselves, provide reliable grounds for knowledge claims (experience with structural barriers), is challenged by Anderson (2015), who argues that knowledge claims grounded in the knower's lived experiences, do not necessarily "yield true beliefs or satisfactory understandings, but rather raise questions around objectivity concerning epistemic privilege and authority". Feminist standpoint epistemologists however, in strengthening their standpoint, use the term "strong objectivity" (Harding, 2007:356), which is regarded as being distinct from neutral objectivity as it takes into consideration bias, based on women's lived experiences. Although hybridisation between relativism and objectivity is implied, credence is not given to relativistic epistemology (Freundlich, 2016).

The feminist standpoint relevant to the aims of this paper, and, in the context of the case study's epistemological perspective, posits that women entrepreneurship and intrapreneurship theories produced for women "knowers" do not include women's gendered perspectives (socially

situated knowledge) in inquiry, which to the knower, is best understood (epistemic authority to claims) from lived experiences exposing the "real" gender blindness (Buskens & Webb, 2009) inherent into the ICT sector, that are subdued and, in consequence, render women's entrepreneurial [intrapreneurial] activities or patriarchal (Harding 2004) relations, invisible.

3. FEMINIST METHODOLOGY APPLICATION: A DEMONSTRATION USING THE CASE STUDY

New knowledge (theory and practice) produced from the recommendations of existing research, as previously suggested, has the potential for research academics and practitioners to grow a new body of literature that policy-makers and programme implementers can glean from to incrementally solve "locally" situated problems (Heeks, 2007), and the feminist approach is a viable alternative, as it investigates the influence of socially constructed conceptions and gender-specific interests and experiences on the production of knowledge. This solution-based approach has the potential to demystify those stereotypes on women's perceived meaningless contribution in the creation of new frameworks in theory and practice, and, in the process, contribute to promoting feminist values and perspectives.

In view of the above premise relating to the aims of this paper, the following research questions, methods and findings, extrapolated from the case study previously mentioned, are used to demonstrate the value of the adoption of feminist epistemology and research methodology norms of inquiry in ICT gender research. It needs to be pointed out that at the time the case study was conducted there was no previous evidence of research conducted on this topic that explicitly adopted a feminist research approach. Much of the evidence in this area of inquiry points to the adoption of a positive approach as "quantitative".

3.1 Research aim

The study was aimed at exploring and describing SMME women-driven entrepreneurship in the ICT sector of the Eastern Cape Province. The view was to gain an in-depth understanding of a topic that little was known, using the voices of women entrepreneurs to describe what was happening in practice in their "real world" context.

3.2 Research questions

Relevant for this paper, the following investigated empirical questions were investigated:

1) Why is the ICT sector perceived as an important enabler in promoting SMME women-driven entrepreneurship?
2) How do SMME women entrepreneurs employ ICT as a core product and service? and
3) What is the role played by government and the private sector in promoting SMME women-driven entrepreneurship in the ICT sector of the Eastern Cape?

3.3 Research design

A multi-grounded theory (MGT) research design, anchored in grounded theory (GT), both qualitative approaches, was employed to explore and discover what was going from women's perspective, is guided by interpretivism and constructivism epistemology, where the researcher played an active role in co-producing knowledge. The design emphasised an iterative analytical approach to data collection and analysis in developing the substantive theory, which was both inductively and deductively driven.

3.4 Selection of participants and sampling procedures

Restrictive inclusion and exclusion criteria (Polit & Beck, 2010) were applied in selecting the participants. The participants were selected based on the following criteria:

1) Participants would be selected from two major metropolitan municipalities of the province – based on the consideration that there would be full representation of ICT industries and an active contingent of ICT enterprises; and that
2) Participants needed to be SMME women entrepreneurs, trading in the ICT sector, who were either registered owners of an ICT enterprise, part of a cooperative, part owner (51% shareholding) of an ICT enterprise, or the manager in charge and responsible for the expansion and strategic development of the ICT enterprise.

The sample size (14 participants) relied on theoretical sampling (Corbin & Strauss, 2008) and theoretical saturation was facilitated through rigorous and detailed data collection and coding processes.

The sampling criteria employed purposeful sampling (Charmaz, 2006), guided by the research questions and was specifically used at the beginning (Oman et al., 2006) to pilot (Nune et al., 2010) the interview guide, and the subsequent interviews were conducted by means of theoretical sampling as the substantive theory evolved. That meant that the categories and concepts that emerged from the data collected from previous interviews guided the researcher towards the next area where data should be collected.

Data collection procedures included: an interview guide, comprising of closed (Merriam, 2009) and thematic open-ended questions; semi-structured (Saunders et al., 2007) in-depth interviews (face-to-face and telephonic); document analysis (Bowen, 2009); and the researcher's active role (Strauss & Corbin, 2008) in the construction of knowledge (Charmaz, 2006).

3.5 Data analysis and interpretation

Guided by MGT procedures, data analysis was empirically driven, or "inductive", and theory-driven, or "deductive" (Goldkhul & Cronholm, 2010). The inductive-driven data analysis process comprised of inductive coding, conceptual refinement, and pattern coding included:

1) full transcription; identifying early codes and conceptual labelling
2) generating and linking substantive categories, properties and dimensions
3) constant comparison
4) saturation of categories, and
5) theory condensation, which was deductively driven and employed explicit grounding processes, which subjected the evolving empirically grounded substantive theory to rigorous validation against three explicit grounding processes, namely: theoretical matching (cyberfeminism and entrepreneurship theories), explicit empirical validation and the evaluation of theoretical cohesion.

The interpretation of data occurred at specific levels of the coding process employing moderate constructivist and interpretive epistemology, guided by the voices of women entrepreneurs.

3.6 Findings

The findings were firmly embedded in the categories of data analysis. The interpretation of data revealed two main categories in data. The first category, depicted in Table 1, "Recognising gender-based discrimination", was analysed and four subcategories emerged from the analysis, namely:

1) gender-based discrimination
2) acknowledging information gap
3) lacking access to resources, and
4) disaggregated data.

From the analysis of these subcategories, six dimensions emerged that provided an in-depth understanding of the main category. From the second main category "Responding to gender-based discrimination", depicted in Table 2, two subcategories emerged – acknowledging information gap and advocating change. The analysis at this level rendered a dimension of insights in understanding the subcategories.

Table 1: Research findings: Main category one – Recognising gender-based discrimination

Subcategory	Dimensions
Gender-based discrimination	Career differences, educational differences, occupational differences, inequalities in the workplace, gender-based sexual harassment, gender stereotyping
Acknowledging information gap	Tenders not advertised, limited information about available, SMME support interventions, limited understanding of market related information
Lacking access to resources	Experiencing difficulty in accessing funding for operating capital, lacking financial skills, inequalities in accessing funding
Disaggregated data	Unavailability of disaggregated statistics

Table 2: Research findings: Main category two – Responding to gender-based discrimination

Subcategory	Dimensions
Acknowledging information gap	Information inaccessible, inequalities
Advocating change	Assertive action

Tables 3 and 4 provide a descriptive summary of dimensions emerging from data in Table 1 and 2. The dimensions were able to render an in-depth explanation deduced from interrelated statements "in vivo codes" shown in quotations.

Table 3: Category one dimensions and illustrations from data

Dimension	Illustrations from data
Career differences: Inequalities in career advancement opportunities in core ICT environments Lack of ICT education and skill	Interview #8: "They [men] do not expect us to do the job and responsibilities of a manager ... the responsibilities that we do are those of taking minutes or being a secretary." Interview #3: "What I know is that there are few of us who have been in retail [ICT] this long as we have been." Interview #9: "You have to train employees to use the technology. For me coming into the ICT environment ... understanding the link between my computer and the shared network was just completely new ... I had to undergo training."
Educational differences: Empowering self and others – ICT training	Interview #8: "I know historically women have been undermined but now ... we are proving to ourselves that there is so much we can do." Interview #5: "Women ... are increasingly taking up ICT professions and holding qualifications equal to men." Participant #9: I feel it is my responsibility to nurture this talent ... there is a space for women in this sector [ICT] ... and [for them] to become women employers."
Occupational differences: Overrepresentation in non-professional ICT occupations Lack of recognition Inequalities in the workplace	Interview #12: "If you look at their [women] positions they are administrators doing office related work and not involved in sound engineering ... it is rare to find them in this environment." Interview #3: "We are equal to men. We run our business on the same level that men do." Interview #5: "Women within the sector still earn less because they are boxed in particular jobs that do not encourage career advancement which would come with an increase in earnings."
Gender-based sexual harassment: Sexual innuendos	Interview #8 : "If you are a female ... there is an expectation from men for women to give themselves to men in order to get work ... if you are not prepared ... the chances of you getting work are limited."

Gender stereotyping: Language: "men's world" and "boy's club" Women's potential to create job opportunities undermined	Interview #12: "There is this stereotyped attitude ... when people come here ... looking for the manager, they expect to see a man: "What is [the gentleman's] name by the way? Mr whom?" Interview #7: "When they come into the shop asking for the owner, you see a look of surprise ... this attitude goes to show how much women are not recognised as being capable of running a business in the environment [ICT]." Interview #2: "Women are not given the credibility they deserve ... they are better employers ... pay better and look after employees."
Tenders not advertised: Lack of transparency in government's procurement processes and economic marginalisation	Interview #9: "Sometimes I do not even know that a request for quotation has been sent out to companies ... as we are grouped [by government] as suppliers into groups offering the same product, we are afforded the opportunity to submit a quotation. Normally, requests for quotations are sent out to the group. But I do not get requests to quote. Mysteriously, you are excluded."
Limited information about available SMME support interventions: Sources from which to obtain financial assistance unknown Information gap between urban, semi-urban rural areas	Interview #1: "I do not know where to find information ... I saw an advert [television] about funding for businesses" Interview #12: "Government may be trying to open up doors [for women] but their programmes are targeting people [SMMEs] who are already aware … like those in big cities like in Gauteng … but not targeting rural areas ... as far as I'm concerned, the people who are affected and need to benefit don't."
Limited understanding of market related information: Lack of understanding of the ICT sector in terms of role players and regulatory framework	Interview #1: "I do not know much about it." Interview #9: "I think government has to be vocal and open. Why should women do business in this sector? [Government] must make them [women] aware ... what it is that one can offer to benefit the client."
Experiencing difficulty in accessing funding for operating capital: Restrictive loan application qualifying criteria Inequalities in accessing funding	Interview #2: "You know as a person coming straight from varsity ... still owing loans, it is difficult to get a loan ... because you do not have a financial record to secure funding from the bank." Interview #2: "I think another problem for SMMEs ... they are not trusted [by banks] until they have proven themselves [credit rating]. But how can they prove themselves if they do not get support [tenders] from the beginning?"
Lacking financial skills: Financial management skills lacking	Participant #13: "Women lack knowledge and education on how to run a business. For some start-up businesses it is not easy as they are not familiar with business operations such as financial management." Interview #4: "A number of SMMEs struggle to stay afloat as they either misused money or cannot account for any of their income and in the process do not make any profit."

Inequalities in accessing funding: Irregular adjudication processes; officials extorting bribes from entrepreneurs	Interview #8: "Funding processes [accessing funding] are not fair to SMMEs and there is a lot of corruption ... to get funding, SMMEs must know someone from inside or belong to a certain network group."
Unavailability of disaggregated statistics: Database unavailable	Interview #2: "It is difficult to know who is doing what because there is not business directory ... even from business associations that have information on what the company does or if it is owned by a women"

Table 4: Category two dimensions and illustrations from data

Dimensions	Illustrations from data
Information inaccessible: Information not available from regional offices	Interview #2: "Most of the information we look for [business opportunities] is available on the website of these companies, but a majority of entrepreneurs do not have money to buy data or airtime to access information." Interview #8: "Sometimes you will not get information because the officer does not have knowledge about the service ... they are not empowered enough by head office."
Inequalities: Accessing ICT services and infrastructure Widening gender digital divide Education attainment levels and technical skills acquisition Accessing tenders	Interview #2: "People in rural areas do not ... have access to the Internet to learn about available career opportunities in the ICT sector ... I can search ... for better positions in this field [ICT]." Interview #6: "Women do not generally show interest in pursuing this direction [technical]. It could perhaps have something to do with family upbringing values ... men are pushed into technical oriented careers ... women are discouraged in pursuing this industry [ICT]." Interview #1: "I do not think women are getting the advantage that they should be getting [access to tender] ... I have not been advantaged [BEE scorecard]."
Advocating change: Empowerment initiatives: ICT training, market intelligence support, information sharing workshops, mentorship programmes Financial support: establishment of ICT hubs Government monitoring and evaluating joint venture projects	Interview #14: "... [government] giving skills to people [free training targeting women] in rural areas ... to create jobs like computer training skills." Interview #12: "Government should penetrate the most rural areas informing and educating entrepreneurs about the benefits of ICT ... through road shows where presentations and information packs would be given to SMMEs on how to introduce ICT." Interview #5: "The private sector can be a source of mentorship for up and coming women entrepreneurs." Interview #11: "Government ... providing funding for the establishment of sustainable ICT centres in rural areas." Interview #9: "Joint venture partnership contracts between smaller and bigger companies, initiated and facilitated by government, should be monitored throughout the implementation stages ... especially when the smaller company is owned by a woman. There is no transparency in terms of payment in relation to work done."

It emerged from the findings in the first category that women entrepreneurs were acutely aware of gender sensitivity issues influencing entrepreneurship development in the ICT sector. The empirical findings, when matched with existing literature, confirmed that around the world a majority of women experienced similar forms of discrimination in the sector. The findings also attest to the difficulty in stamping out gender-based discrimination as it is embedded in society's historic fabric of remnants of post-colonial regime permeating across corporate and business institutions, where social, economic and technological divides manifest as barriers in women's empowerment aspirations.

The findings also revealed that women were responding to gender-based discrimination. Women affirmed that they were already taking action towards addressing some of the challenges cited above, and the kind of action and transformative programmes they wanted the government and the private sector to implement were stated. This is in line with feminist standpoint epistemology, which recognises that the ultimate goal for the marginalised is to advocate for change. The analysis at sub-category level revealed that women were taking assertive actions to correct the identified shortcomings in the ICT sector by mentoring employees, encouraging young women to enrol for ICT skills courses and offering internship opportunities, where young women are given first preference to counterbalance the existing gender imbalances that favour men.

4. CONCLUSION

This paper highlighted the need for a collaborative research approach that fuses theory and practice, and the important role that research academics and practitioners can play in bridging the gap in literature in relation to the dearth of feminist empirical research studies examining women's entrepreneurship and intrapreneurship in ICT institutions and businesses. This paper has also aimed to create awareness on feminist standpoint epistemology and methodology as a norm of inquiry, and holds that it is a suitable approach to employ when examining gender-situated problems. This approach, therefore, formed the theoretical context within which the factors that inhibit women's active participation in the ICT sector of the Eastern Cape Province were investigated.

Although many studies may present similar challenges on women's oppression and marginalisation, the winning formula for an ideal approach will depend on the appropriateness of the epistemological and methodological approach employed, as there cannot be a "one-size-fits-all" approach; instead, such a choice should be based on the "locality" and "situatedness" of knowledge claims. These are considerations that research academics and practitioners need to take into consideration when developing theories, policy and programmes on women's entrepreneurship and intrapreneurship within the ICT sector. The starting point for knowledge production should come from the standpoint of marginalised groups.

REFERENCES

Al Sebaie, F. Y. A. (2015). *Women's career advancement in the IT field in the Kingdom of Bahrain*. Doctoral thesis. Retrieved January 11, 2017, from http://usir.salford.ac.uk/36932/7/.

Ahl, H. (2006). Why research on women entrepreneurs needs new direction. *Entrepreneurship Theory and Practice*, 30(5): 595-621.

Allen, I. E., Elam, N., Langowitz, N., & Dean, M. (2007). *Global entrepreneurship monitor report on women and entrepreneurship*. London: Babson College and London Business School.

Anderson, E. (2015). Feminist epistemology and philosophy of science. In E. N. Zalta (ed.), *The Stanford Encyclopaedia of Philosophy*. Retrieved January 6, 2017, from http://plato.stanford.edu/archieves/fall2015/entries/feminism-epistemology/

Bettio, F., & Verashchagina, A. (2009). *Gender segregation in the labour market: Root causes, implications and policy responses in the EU*. Luxembourg: European Union.

Boules, N., Douglas, K., Feldman, S., Fix, L, Hager, G., Hailpern, B., Herbert, M. Lopresti, D., Mynatt, B., Rossbach, C., & Wright, H. (2016). *The future of computing research: Industry-academic collaborations*. Computing Research Association. Retrieved January 6, 2017, from: http://cra.org/ccc/wp-content/uploads/sites/2/2016/06/15125-CCC-Industry-Whitepaper-v4-1.pdf

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research* Journal, 9(2): 27-40. Retrieved January 6, 2017, from: http://search.informit.com.au/documentSummary;dn=252446162410248;res=IELHSS

Buskens, I., & Webb, A. (2009). *African women and ICTs: investigating technology, gender and empowerment*. International Development Research Centre (IDRC). London: Zed Books.

Cape Times. 2015. *Investing in black women in ICT sector to shatter glass ceiling*. August, 17. Retrieved January 6, 2017 from: www.iol.co.za/capetimes/investing-in-black-women-in-ict-sector-to-shatter-glass-ceiling-1901308

Castano, C., Sainz, M., Gonzalez Ramos, A., & Lopez, B. (2009). *What leads women to pursue a research career in the field of ICTs? The case of Spanish public research institutions*. Bremen: 5th European Symposium on Gender & ICT. Retrieved January 17, 2017 from: www.genderICT2009.

Castano, C., Sainz, M., & Gonzalez Ramos, A. (2008). *Where are women doing research in the ICT sector?* Retrieved January 6, 2017, from: http://www.researchgate.net/publication/43669305_Where_are_women_doing_research_in_the_field_of_ICTs

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage.

Charmaz, K. (2008). Constructionism and the grounded theory method. In Holstein, J. A. & Gubrium, J. F. (eds). *Handbook of constructionist research*. New York: The Guild Press. pp. 397-412.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory*, 3rd ed. Thousand Oaks, CA: Sage.

Dlamini, N. (2012). *The representation of women in senior management positions of the ICT industry of Johannesburg*, South Africa. Master of Arts Degree Thesis. Retrieved January 6, 2017, from: http://www.academia.edu/8688778/

Douglas, K. (18 August 2016). *High illiteracy levels will widen Africa's digital divide*, says expert. Retrieved January 6, 2017, from: www.howwemadeitinafrica.com/high-illiteracy-levels-will-widen-africas-digital-divide-says-expert/

Fernandez, M., & Wilding, F. (2003). Situating cyber feminisms. In M. Fernandez, F. M., Wilding, F., & Wright, M. M. (eds.), *Domain errors: Cyberfeminist practices*. New York: Autonomedia.

Fonow, M. M., & Cook, J. A. (2005). Feminist methodology: New applications in the academy and public policy. *Signs*, 30(4): 2211-2236

Freundlich, A. 2016. *Feminist standpoint epistemology and objectivity*. Retrieved January 9, 2017, from: http://wordpress.viu.ca/compassrose/files/2016/05/Freundlich-Feminist-Standpoint-

Gajjala, R. (2004). *Cyber selves: Feminist ethnographies of South Asian women*. Los Angeles: Alter Mira Press.

Ghoshal, L., & Passerini, K. (2006). Analysing gender segregation computing. In E. Trauth (ed.), *Encyclopedia of Gender and Information Technology*. Hershey, PA: Idea Group Reference. pp. 25-30.

Goldkhul, G., & Cronholm, S. (2010). Adding theoretical grounding to grounded theory: Toward multi-grounded theory, *International Journal of Qualitative Methods*, 9(2):187-205. Retrieved January 6, 2017, from: http://ejournals.library.ualberta.ca/index.php/IJQM/article/viewFile/6784/7027

Goodey, J. (1998). Doing research on "fear of crime, boys, race and masculinities": Utilising a feminist standpoint epistemology. *International Journal of Social Research Methodology*, 1(2): 137-151.

Griffiths, M., & Moore K. (2010). "Disappearing women": A study of women who left the UK ICT Sector. *Journal of Technology Management & Innovation*, 5(1): 95-107.

Hafkin, N. (2003). *Some thoughts on gender and telecommunications/ICT indicators*. Retrieved January 6, 2017, from: http://www.itu.int/ITU-D/pdf/5196-007-en.pdf

Haraway, D. J. (1997). *Simians, cyborgs, and women: The reinvention of nature*. London: Free Association Books.

Harding, S. (1986). *The science question in feminism*. Ithaca: Cornell University Press.

Harding, S. (1987). *Feminism and methodology: Social science issues*. Bloomington: Indiana University Press.

Harding, S. (2004). *The feminist standpoint reader*. New York: Routledge.

Harding, S. (2007). Rethinking standpoint epistemology: What is 'strong objectivity'?, In K. Brad Wray (ed.), *Knowledge and inquiry: Readings in epistemology*. Ontario: Broadview Press. pp. 352-384.

Hartsock, N. (1983). The feminist standpoint: Developing the ground for a special feminist historical materialism, In S. Harding and M. Hintikka (eds.), *Discovering Reality. Feminist Perspectives on Epistemology, Metaphysics, Methodology, and Philosophy of Science*. Dordrecht: Reidel. pp. 283-310.

Heeks, R. (2007). Introduction: Theorising ICTD research. *Information Technology and International Development*, 3: 1-4.

Hesse-Biber, S. N. (2012). Feminist research: Exploring, interrogating, and transforming the interconnections of epistemology, methodology, and method. In S. N. Hesse-Biber (ed.) *The Handbook of Feminist Research: Theory and Praxis*. (2nd ed.). Boston, MA: Sage. pp. 1-25.

Hughes, C., & Cohen, R. L. (2010). Feminists really do count: The complexity of feminist methodologies. *International Journal of Social Research Methodology*, 13(3):189-196.

Husu, L., Koskine, P., & Koskinen, P. (2010). What does it take to get to the top? Women at the top of technological research. In Godfroy-Benin, A. (ed.), *Women in Engineering and Technology, Research. Proceedings of the PROMETEA Conference*, Paris, 26-27 October 2007. Paris: Lit Verlag. pp. 303-326.

Intemann, K. (2005). Feminism, underdetermination, and values in science. *Philosophy of Science*, 72(5): 1001-1012.

Inteman, K. (2010). 25 years of feminist empiricism and standpoint theory: Where are we now? *Hypatia*, 25(4): 778-796.

Interface 3. (2015). Telecentre Europe's Position Paper on Gender Equality on 19 December 2015. Retrieved January 6, 2017, from http://www.telecentre-europe.org/gender-equality-tes-policy-position/

Keser, J. (2014). Importance of women and women entrepreneurship education for technologies: An analysis of policy documents: education for entrepreneurship. *International Journal of Education for Entrepreneurship*, 4(2): 53-66.

Kutanis, R. O., & Bayraktaroglu, S. (2003). *Female entrepreneurs: Social insights for overcoming the barriers*. 3rd International Critical Management Studies Conference. Lancaster University Management School, 7-9 July, 2013.

Kvochko, E. (2016). *Why there are still few women leaders in tech?* Retrieved January 6, 2017, from: www.forbes.com/sites/elenakvochko/2016/01/04/women-executives-in-tech/#24acdfaf4d16

Lewis, S., Lang, C., & McKay, M. (2007). An inconvenient truth: The invisibility of women in ICT. *Australian Journal of Information*, 15(1): 59-76.

Mamabolo, M. (2016). *SA Gender Commission warns ICT industry*. Retrieved September 6, 2016, from: www.itwebafrica.com/ict-and-governance/267-south-africa/236038-sa-gender-commission-warns-ict-industry

Mauthner, N., & Doucet, A. (2003). Reflexive accounts and accounts of reflexivity in qualitative data analysis. *Sociology*, 37(3): 413-431.

McDonald, C. (2016). *IT companies need technical workers with soft skills*. Retrieved January 6, 2017, from: www.computerweekly.com/news/4500272633/willington-IT-companies-need-technical-workers-with-soft-skills

McQuillan, H. (2009). Technicians, tacticians and tattlers: women as innovators and change agents in community technology projects. *The Journal of Community Informatics*. Retrieved January 11, 2018 from: http://ci-journal.net/index.php/ciej/article/view/506/462

Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. New York: Wiley.

Media, Information and Communication Technologies Sector Education and Training Authority (MICT SETA). (2014). *MICT SETA Sectors Skills Plan for 2015-2020 (2nd Draft)*. Johannesburg: MICT SETA.

Minniti, M. (2010). Female entrepreneurship and economic activity. *European Journal of Development Research*, 22: 294-312.

Njoki, M. M., Wabwoba, F., & Micheni, E. M. (2016). ICT definition implication on ICT career choice and exclusion among women. *International Journal of Information Technology and Computer Science (IJITCS)*, 8(5): 62-67.

Nune, M. P., Alajamy, M., Al-Martins, S., & Zhou, T.J. (2010). *The role of pilot studies in grounded theory: Understanding the context in which research is done*, Proceedings of the 9th European Conference on Methods in Business and Management Studies Madrid: IE Business School. 24-25 June 2010. Retrieved January 6, 2017, from: http://books.google.co.za/books?id=8mTywIN8EXkC&pg=PA34&dg=pilot+study+qualitative+research+%2B+grounded+research&sorce=bl&ots=YN-Ffa4ZPU&sig=95YM56K_070DKK8DQkeW3bDkiuk&hl=en&sa=X&ei=VgxdUqT5B46FhQe1k4GgC&ved=0CGIQ6AEwBg#v=onepage&q=pilot%20in%20qualitative%20research%20%B20%grounded%20research&f=false

OFSTED. (2009). *The importance of ICT: Information and communication technology in primary and secondary schools*. 2005/2008. London: Office for Standards in Education, Children's Services and Skills (OFSTED). Retrieved January 6, 2017, from: www.ofsted.gov.uk/content/download/9167/101177/file/TheimportanceofICT.pdf

Oman, K. S., Krugman, R. N., & Fink, R. M. (2003). *Nursing research secrets*. New York: Hanley and Belfus.

Paasonen, S. (2005). *Surfing the waves of feminism: Cyberferminism and others*. Retrieved January 6, 2017, from: http://www.tanianavarroswain.com.br/labrys7/cyber/susanna.htm

Plant, S. (1996). On the matrix: Cyberfeminism simulations. In R. Shields (ed.), *Culture of the internet: Virtual spaces, real histories, living bodies*, London: Sage. pp. 170-183.

Pines, A.M., & Schwartz, D. (2008). Now you see them, now you don't: Gender differences in entrepreneurship. *Journal of Managerial Psychology*, 23: 811-83.

Polit, D. F., & Beck, C. T. (2010). *Essentials of nursing research: Appraising evidence for nursing practice*. 7th ed. Wolters Kluwer Health. Philadelphia: Lippincott, Williams and Wilkins.

Pringle, R., Nielsen, S. H., Greenhill, A., & Parfitt, L. (2000). Net gains success strategies of professional women in IT: Chapter, Women, Work, and Computerisation. *The International Federation for Information Processing*, 44: 26-33.

Reinharz, S. (1992). *Feminist methods in social research*. New York: Oakford University Press.

Schofield, A. (2016). *2016 Johannesburg Centre for Software Engineering (JCSE) Skills Survey*, 7th ed. Johannesburg: Johannesburg Centre for Software Engineering.

Sekeleni, N. (2014). Women-driven entrepreneurship within the Information and communication technology sector: A grounded analysis of small, micro and medium enterprises in the Eastern Cape Province. Pretoria: University of South Africa. Doctoral thesis.

Shope, J. H. (2006). "You can't cross a river without getting wet": A feminist standpoint on the dilemmas of cross-culture research. *Qualitative Inquiry*, 12(1): 163-184.

Mkhize, H. (2016). *Women in power, society in transformation*. Speech by Deputy Minister of the Department of Telecommunications and Postal Services. Pretoria: Government Printers.

Saunders, M., Lewis, P., & Thoutnhill, A. (2007). *Research methods for business students*. 4th ed. Essex: Pearson Education.

Teoh, W. M. Y. & Chong, S. C. (2014). Towards strengthening the development of women entrepreneurship in Malaysia. *Gender Management: An International Journal*, 29(7): 432-453.

Thaler, A. (2010). Career perceptions of women in industrial technology research. In A.-S. Godfroy-Genin (eds.) Women in Engineering & Technology Research. *Proceedings of the PROMETEA International Conference*, October 26-27: 2007. Zurich: Lit Verlag. pp, 63-84.

Van de Ven, A. H., & Johnson, P. E. (2006). Knowledge for theory and practice. *Academy of Management Review*, 31(4): 802-821.

Vossenberg, S. (2013). Women entrepreneurship promotion in developing countries: What explains the gender gap in entrepreneurship and how to close it. Retrieved January 9, 2017, from: http://web2.msn.nlRePEc/msn/wpaper/MSN-WP2013-08.PDF

Vossenberg, S. (2014). Beyond critique: How feminist perspectives can feed entrepreneurship promotion in developing countries. Presented at *International Research and Policy Seminar Promoting Women's Entrepreneurship Which Policies and Practices Work Best*. Maastricht School of Management. May.

Wajcman, J. (2004). *Technofeminism policy*. Cambridge: Cambridge University Press.

Wajcman, J. (2010). Feminist theories of technology. *Cambridge Journal of Economics*, 34: 143-152.

Wakunuma, K. (2013). Mobiles for development in Africa: Are we in danger of losing sight of the bigger picture? *Feminist Africa*, 18: 131-139.

Webb, P., & Young, J. (2005). Perhaps it's time for a fresh approach to ICT gender research? *Journal of Research and Practice in Information Technology*, 37: 147-160.

Whyte, M. K. (2010). *One country, two societies: Rural-urban inequality in contemporary China*. London: Harvard University Press.

Wickramasinghe, M. (2010). *Feminist research methodology. Making meanings of meaning-making*. London: Routledge.

Wilding, F. (1998). Where's the feminism in cyberfeminism? *Paradoxa: International Feminist Art Journal*, 1(2):6-13.

Women in IT Scorecard 2015. Tech Partnership: Skills for the digital economy. Retrieved January 9, 2017, from: https://www.thetechpartnership.com/gloalassets/pdfs/

World Economic Forum. (2013). *The Global Competitiveness Report 2013*. Retrieved January 9, 2017, from: http://www3.weforum.org.docs.WEF_GlobalCompetitivenessReport_2012-13.pdf

World Economic Forum. (2015). *The Global Competitiveness Report 2014-2015*. Retrieved January 6, 2017, from: http://www3weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf