Challenges facing women in ICT from a women perspective: A case study of the Zimbabwean Banking Sector and Telecommunications Industry

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Abstract: This research sought to establish why there is a low presence of women in ICT jobs; yet they constitute the larger percentage of the population. The researchers did a literature review, used a survey questionnaire to collect statistical data, and carried out in-depth interviews with key informants who were women in ICT-related jobs in the banking and telecommunications sector in Zimbabwe. According to the study, lack of digital exposure and career guidance posed the greatest challenge for women pursuing ICT-related careers, with 95.74% of the respondents citing this challenge. Interestingly, organizational constraints had the lowest response, possibly indicating that the organizational environment is no longer a discriminating factor towards the progression of women in their careers. The study recommended proper career guidance on what ICT has for women and this can be done by the parents, mentors, and institutions of higher learning.

Key words: women in ICT; career guidance and development programs; work life balance; 50% diversity rule; gender stereotype; lack of mentors and role models;

1 Introduction

The information and communication technology (ICT) sector has evolved over the last decade in Zimbabwe and is increasingly becoming virtually a key driver of every sector of the economy. The Sustainable Development Goals (SDGs) 2015-2030 development agenda is premised on ICTs to achieve the world we want. The current Zimbabwean government has targeted the achievement of a middle-income economy by 2028. To realise the intended goals, it is imperative that the ICT sector plays a crucial role. While Zimbabwe boasts of the best literacy rate in Africa and there is an equally high shortage of competent, skilled technical people across various sectors of the economy. The United Nations identified information and communication technologies as tools through which gender equality and women’s empowerment can be advanced. Thus, ICTs are central to the establishment of a new social order, which ultimately results in both women and men substantively contributing and participating in economic activities. This is echoed by the International Telecommunication Union’s Resolution 70, which highlights the role that ICTs can play in the advancement of gender equality and women’s empowerment. In Zimbabwe, currently women constitute 54% of the population (https://www.newsdaily.co.zw), yet they are proportionally less represented in the technical areas. This research sought to investigate why there is a low presence of women in ICT jobs, yet they constitute a larger percentage of the population. The researchers carried out an analysis of the presence of women in ICT-related jobs in the banking and telecommunications sector.

The specific objectives of the research are:

1. The current state of women representation in the ICT field and the ICT skills possessed by these women in the banking and telecommunication sectors in Zimbabwe.
2. Establish the obstacles women face in pursuing a career in ICT from school, through university and in their work and progression in ICT companies.

3. Avail best practices on how to encourage the girl child to pursue ICT academic path.

4. Avail best-practice cases on how to attract more female qualified workers into the ICT sector, how to ensure there is fair progression in their careers, and a good work-life balance.

2 Background and Context

Globally, the ICT sector is touted as the most promising industry, in which growth is projected in the next few years. Currently, in Zimbabwe, at most tertiary institutions, there is a mandatory ICT module for all students. On the Zimbabwean job landscape many ICT jobs are on offer, but the bulk of positions and key positions seem to be the preserve of men. With the shrinking job markets in other sectors, ICT as a sector as well as the anchor of many development fronts, presents tremendous job opportunities for all including women. With the evolution and revolution happening in ICT like Cloud computing, Big Data, Ubiquitous computing and the Internet of Things, among other transformations, Information Technology related jobs are predicted to constitute a very big chunk of the job market in the not-so-distant future. The United Nations Development Programme opines that around 90 percent of jobs will soon require ICT skills. But for women to seize these opportunities equally as men and be able to meaningfully contribute to their personal, family, and national development, there is a need to understand the challenges faced by women in pursuing a career in ICT from school, through university, and in their work and progression in ICT companies. This paper looked at gender-specific issues like gender stereotypes and biases that prevent them from pursuing or making it big in the ICT field. The research participants were women occupying ICT positions in banks and telecommunication companies in Zimbabwe.

3 Literature Review

The literature review focused on contextualising the obstacles faced by women in pursuing ICT-related careers from school, through university, and in their work and progression in ICT companies globally. The starting point was defining what ICT means and ICT employment with regard to women and ultimately the challenges faced by women in terms of pursuing ICT-related careers.

3.1 Definition and scope of ICT

ICT is a broad term that has to do with the harnessing of process, the methods and the product of electronic and communication, related technologies, and other related resources in today’s knowledge-driven society for enhancing the productivity, spread, and efficiency of a set of programmed activities geared toward the achievement of clearly determined goals (Aduke, 2008).

Rijsenbrij 1997 cited in Herselman and Hay (2003) define ICTs as “technologies that support the communication and co-operation of human beings and their organizations and the creation and exchange of knowledge” (p932). ICTs also refer to the infrastructure that brings people to gather in different places and time zones with multimedia tools for data, information, and KM in order to expand the range of human capabilities Heeks (1999) cited in Herselman and Hay (2003).

Martin 1988, cited in Nnazor (2009), describes ICT as a change agent and observes that no field of human endeavour remains immune to its influence, no corner of life is left undisturbed by its coming. ICTs have been pervasive and continue to traverse many aspects of business and social life like agriculture (Musungwini, 2016b, 2018), tourism (Tsokota, von Solms and van Greunen, 2017), health (Hughes et al., 2019), banking and payments (Shambare, 2013; Musungwini, Zhou and Ruvinga, 2014), vending (Musungwini, 2017) ,energy and power (Musungwini Samuel, Zhou Tinashé G, 2014; Musungwini, 2016a; Mahlangu and Musungwini, 2018), etc. Thus, ICT has become an essential resource for business activities due to the development of high bandwidth telecommunications networking, integrated distribution systems and database systems, which allow businesses to operate in a global way (Maldeni & Jayasena 2009). ICTs, particularly the Internet are driving innovation, labour, productivity, and growth (OCED 2012).

The application of ICTs in the banking sector is of great importance as it affects how managers decide, how they plan, and what products and services are offered in the banking sector (Ekwonwune et al., 2017). Information technology has changed the ways banks and their corporate relationships are organised, and there are a number of innovative devices available to enhance the speed and quality of service delivery (Ekwonwune & Dike 2006 cited in Ekwonwune et al., 2017).
3.2 ICT Employment and Women

With regard to ICT employment OECD (2018) defines it as the people working in the Information and Communication Technology (ICT) sector. This indicator is measured as a percentage of business sector employment representing a broad category, including professional profiles as diverse as systems analysts, software developers, telecommunication engineers, ICT sales professionals, and graphic and multimedia designers. The term also refers to the condition of working in the ICT sector, generally emphasizing paid work.

Reports from a study done by the European Parliament’s Committee on Women’s Rights and Gender Equality in 2018 revealed that there are gender divides in the digital labour market with low participation by women in the digital labour market and, particularly in high-quality jobs and top management positions. Maldeni and Jayasena (2009 p29) conclude that there is a qualitative and quantitative imbalance in the supply of skilled labour. Women still participate less in the ICT sector and ICT specialist occupations than men, but their share in employment is increasing in most countries (OECD 2012). Despite expanding ICT job opportunities, there has been a decrease in the proportion of girls entering ICT studies and pursuing ICT careers (Morton et al., 2018 p1). This may be due to the lack of understanding of what is available in the ICT industry (Dimitriadis, 2013). In some cases, the ICT industry has been given a ‘nerdy’ image (Bernhardt 2014 p105), and many girls consider ICT subjects as being too theoretical, rigidly structured, and boring (Fisher et al., 2015 p2).

According to the International Telecommunications Union, ICTs are tools through which gender equality and women’s empowerment can be advanced and this can be achieved by encouraging girls to choose careers in the field of ICTs and encouraging the use of ICTs for the social and economic empowerment of women and girls.

However, there are a number of challenges or obstacles related to the employment of women in ICT-related careers, which are discussed below:

A. Social and cultural factors

A lot of girls are now going to school and pursuing different ICT-related careers but still face huge inequalities in the world of work (Klugman et al., 2014; Mandour, 2009). The challenges include their simultaneous obligations to their households (Al-Alawi, 2016) with the social structure, including the family being the main cause of inequalities (Kucuk, 2013). The gender division of labor in the family leaves the women with only a few hours daily for engaging in work outside the household (UNIFEM, 2005).

Girls may face cultural pressures and stereotypes that discourage them from developing the skills needed to develop the ICT workforce (Powell & Mei Chang 2016). Gender stereotypes are created within families with ICT careers being given a gender label (Castano and Webster, 2011). Preconceived ideas of how women and men use technology remain unchanged (Ferreira, 2017) with technology being viewed as a “boys’ toy” (Morgan, 2012). With time, these stereotypes can influence their choices over time, reducing their confidence and interest in ICT and turning them away from ICT as an occupation (Clayton et al., 2009).

B. Employment

Employment in the ICT sector is widely known for being male-dominated (Hodgkinson, 2000; Powell and Mei Chang, 2016) and the entry of women into ICT education and employment has not only stalled but their representation in certain areas of computing education and computing work has decreased (Castano & Webster, 2011).

Recruitment and progression processes now tend to place more emphasis on individuals with technical skills (Castano & Webster 2011; Valenduc & Vendramin 2005), leaving ICT professionals with soft skills having to leave the ICT professions and move towards other careers or positions. What this means is there will be need for constant refresher courses, long unpredictable and unsocial hours, need for remote working on client premises, all of which are demanding considering that women have to do this in conjunction with domestic responsibilities (Morgan 2012; Warne et al., 2011; Ahuja 2002). Though firms might have a large number of qualified women, they are not considered for promotion to executive positions on the basis that they are deemed to be unreliable workers who will take breaks for childbirth and other family responsibilities (Burke et al., 2000).

ICT jobs have the potential to offer flexible working hours and the ability to work remotely, which can enable women to balance work and family responsibilities, but only a few organisations have restructured their work to make jobs more accessible for women (Powell and Mei Chang 2016).
In addition, after experiencing motherhood, some women may appear less committed to their work and lament the loss of their personal networks and self-confidence (Herman and Webster, 2010) and respond by dropping out of their ICT careers (Griffiths and Moore, 2010), while others might show great enthusiasm and commitment to their work (Faulkner, 2009), and others choose not to have families whilst developing their careers (Griffiths et al., 2006) and these are stereotyped for choosing careers over family responsibilities.

According to Morgan (2012) and Griffiths et al., (2006), ICT professional culture is a ‘chilly’ one for women. Gillard and Mitev (2006 p196) concluded that: "The ICT industry, renowned for its youthful, masculine techno-culture is a hard and un-friendly environment for women to enter and succeed in despite equity and diversity legislation."

C. Lack of role models or mentors

The lack of female role models and mentors in academic and professional careers is another challenge facing women in ICT (Powell & Chang 2016; Ahuja 2002). Hansen (2010) concluded that if women are not sponsored into strategic roles by role models, they will not take up strategic positions. There are a few women in executive positions because many women cannot find a female mentor; thus, they are inhibited in the workplace (Laff 2006). If the ICT industry is lacking in high-profile younger role models, fewer girls will want to pursue ICT as a career (Morton et al., 2018 p9).

Many women lose their drive to excel in their profession because of many obstacles such as discrimination, stereotyping, prejudice, and lack of opportunities (Emory 2008). Thus, for girls or women pursuing careers in ICT, role models can provide valuable mentoring services for ICT women in their establishment and growth career stages as well as provide an important contribution to improving the overall work culture of the sector. More role models are needed who stay close to the technology as they can push women forward and make it easier to achieve advancement (Weinehall, n.d). Mentoring is now an excellent method to integrate women into the business world as mentors can provide participants with ideas on how to advance their careers, encouraging them to take risks and sharing their expertise with participants.

D. Needed Initiatives

According to Powell and Chang (2016), expanding women’s access to ICT jobs would not only advance economic opportunities for women, their families, and communities, but would help address the shortage of skilled workers for these jobs and grow the digital economy.

Education level is not a barrier to reaching leadership positions in ICT-related careers. What is needed are nationwide initiatives to improve training, education, and guidance for women so that they can be better prepared and trained to take up jobs that build ICT skills (Al-Alawi, 2016). This is supported by Klugman et al (2014 p147) who says: “If targeted training and skills development is provided, it can reduce barriers to women’s entry into management and give businesses a competitive advantage by expanding the pool of job candidates and ensuring women are part of the talent pipeline.”

Mullins (2005) also reaffirms this notion that advocating for training provides more opportunities for career progression by boosting the competence levels of individuals and the organisation.

Policy also plays an important role in creating a more inclusive digital world by improving ac-cess to digital technologies, by endowing people with the skills needed to cope with and thrive in the digital transformation, and by fostering employment, entrepreneurship, financing, and leadership in the digital era (OECD 2018). These policies should also integrate ICT mentorship and support networks for women in education and employment programs.

4 Methodology

This section presents the demographic characteristics of the participants and the research findings from the study. The findings give an overview of the participants’ perceptions based on the responses to the questions asked as well as interviews conducted with the participants.

4.1 General Information

This study utilised both qualitative and quantitative data. It was necessary to include both forms of research tools due to the exploratory nature of the subject matter in the Zimbabwean context. Although, there has been some substantial research on both the United Nations’ (UN) SDG’s and gender equality, empirical literature on issues affecting women, in their pursuit of ICT careers is still very limited. Thus,
we carried out this research using in-depth interviews and a survey questionnaire to make a fair and detailed analysis of the research. The respondents were drawn from the ICT departments of 3 telecommunication companies and 5 banks that were purposively sampled. The researchers chose 4 key informants for in-depth interviews and these were chosen based on their managerial capacity in the ICT departments of their organisations. 1 was a male and an ICT director at a telecommunication company and 3 were ladies. 1 was an ICT manager in a telecommunication company, and the other 2 were ICT managers in the sampled banks. The information gathered from the key informants and literature review was used in the construction of the survey questionnaire. 50 questionnaires were distributed and out of these 48 were returned. However, 1 questionnaire contained some errors, and thus 47 were considered for further processing, representing a 94% response rate.

5 Findings

The key informants who were interviewed provided valuable insightful contextual information about the women and the ICT work environment in Zimbabwe. According to participants, ICT work can be a very lonely environment for women. In some extreme cases, the environment can be very intimidating to any woman from high school through university/college up to the actual office work environment. Most of the respondents indicated that throughout their school and university learning years, they were very few in their classes compared to boys/men.

“I was often the only woman in the computer lab when I was an undergraduate computer science student in the 1990s at the University. After graduating I joined the telecom company, and in office I was the only woman. […] the environment was very intimidating. My first days at work were a nightmare, as I would frequently take very deep breaths before entering the work office.”

1) Objective 1. The current state of women representation in the ICT field and the ICT skills possessed by these women in the banking and telecommunication sectors in Zimbabwe.

![Figure 1: Age groups of respondents, source: (author)](image)

The majority of the respondents (57.4%) were in the 25-30 years age group, followed by those in the 31-35 years age group constituting 38.3%, and lastly 4.3% in the 36-40 years age group (see Figure 1).
As shown in Figure 2, 66 percent of the respondents indicated that they possessed high-level skills needed in the profession, 26% said they were medium skilled and 8% low skilled. In addition, the questionnaire also required that the respondents indicate the roles they were doing in their different work places. These roles were classified into 3 levels. Therefore, the analysis was done in 3 categories using the roles identified from the literature review and those identified by the key inform-ants who were interviewed.

A. Lower Skilled roles.
A total of 5 roles were established as qualifying for this section. Women in ICT in the telecommunications and banking industry in Zimbabwe are mainly involved in the computer operators’ roles with the highest response rate of 37, which translates to 78.72%. Billing and posting clerks and machine operators scored 29 out of 47, which translates to 61.70%. Office ma-chine operators accounted for 17, which translates to 36.17%. However, the switchboard operators, including answering service and mail clerks and mail machine operators with the exception of postal service, attracted 0 = 0.00% respondents. The details are on Table 1.

B. Medium skilled roles.
In this category, a total of 3 roles were established as qualifying for this category. The research participants were mainly involved in computer, ATM, and office machine repairers with a response rate of 32 respondents, and this translates to 68.09%. Electrical and electronic equipment assemblers scored 5 out of 47, which translates to 10.64%. Telecommunications line in-stallers and repairers accounted for a paltry 3, which translates to 6.38%.

C. Highly Skilled roles.
According to key informants, a total of 7 roles were identified as falling into highly skilled roles. Computer and information systems managers’ roles had the highest number of respondents with 18, translating to 38.30%. This was followed by Computer software engineers and applications with 13 respondents making it 27.66%. The role of Computer systems analysts was 3rd with 11 respondents 23.40% indicating that they perform this role. The other 4 roles were established as follows: network and computer systems administrators with 7 respondents accounting for 14.89%, database administrators’ role accounted for 6 respondents, translating to 12.77%. computer and information scientists, research obtained 4, making it 8.51% and lastly, computer programmers had the least number of respondents 3 which is 6.38%. Table 1 below provides all the data on the roles.

Table 1: Roles played by women in ICT in the telecommunications and banking sector in Zimbabwe. Source: (author)

<table>
<thead>
<tr>
<th>Roles</th>
<th>Number</th>
<th>Percentage</th>
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<tbody>
<tr>
<td><strong>HIGHLY SKILLED ROLES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer software engineers, applications.</td>
<td>13</td>
<td>27.66 %</td>
</tr>
<tr>
<td>Computer systems analysts.</td>
<td>11</td>
<td>23.40 %</td>
</tr>
</tbody>
</table>
CHALLENGES FACING WOMEN IN ICT FROM A WOMEN PERSPECTIVE: A CASE STUDY OF THE ZIMBABWEAN BANKING SECTOR AND TELECOMMUNICATIONS INDUSTRY

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and information systems managers.</td>
<td>18</td>
<td>38.30 %</td>
</tr>
<tr>
<td>Network and computer systems administrators.</td>
<td>7</td>
<td>14.89 %</td>
</tr>
<tr>
<td>Computer and information scientists, research.</td>
<td>4</td>
<td>8.51 %</td>
</tr>
<tr>
<td>Database administrators.</td>
<td>6</td>
<td>12.77 %</td>
</tr>
<tr>
<td>Computer programmers.</td>
<td>3</td>
<td>6.38 %</td>
</tr>
<tr>
<td><strong>MEDIUM SKILLED ROLES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical and electronic equipment assemblers.</td>
<td>5</td>
<td>10.64 %</td>
</tr>
<tr>
<td>Telecommunications line installers and repairers.</td>
<td>3</td>
<td>6.38 %</td>
</tr>
<tr>
<td>Computer, ATM, and office machine repairers.</td>
<td>32</td>
<td>68.09 %</td>
</tr>
<tr>
<td><strong>LOW SKILLED ROLES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billing and posting clerks and machine operators.</td>
<td>29</td>
<td>61.70 %</td>
</tr>
<tr>
<td>Computer operators.</td>
<td>37</td>
<td>78.72 %</td>
</tr>
<tr>
<td>Office machine operators, except computers.</td>
<td>17</td>
<td>36.17 %</td>
</tr>
<tr>
<td>Switchboard operators, including answering service.</td>
<td>0</td>
<td>0.00 %</td>
</tr>
<tr>
<td>Mail clerks and mail machine operators except postal service.</td>
<td>0</td>
<td>0.00 %</td>
</tr>
</tbody>
</table>

The study also sought to establish how long the respondents were based at their current work-places.

![Figure 3: Tenure in the ICT industry, source: (author)](image)

As shown in Figure 3, 55 percent of the respondents have been there for 5-10 years, 13% over 10 years, and 32% below 5 years. This was crucial as tenure is sometimes said to have an impact on job performance and satisfaction.

2) **Objective 2: Establish the obstacles women face in pursuing a career in ICT from school, through university, and in their work and progression in ICT companies.**

This was the critical objective of this research, without which the essence of this research loses meaning. According to key informants, women pursuing a career in ICT face up to a total of 11 obstacles from school, through university up to the work environment. Of the identified 11 obstacles, lack of digital exposure and career guidance from a young age had the largest number of respondents in the survey, with 45 respondents out of 47, thus a percentage of 95.74%. Discouragement from all men and women in society was found to be the second most experienced obstacle among women in Zimbabwe, with 43 respondents, which is 91.49% among participants choosing it.

The issue of gender stereotyping is a very critical obstacle as it discourages young women from choosing an ICT career staying with their career and developing and progressing in their careers. According to the key informants, this obstacle is experienced from the school going stage, at
college/university, and in the workplace itself. This obstacle obtained 39 respondents out of 47 survey participants, making it 82.98%. According to one key informant, this problem even starts in the home where the girl child comes from as she had this to say:

“The issue of gender stereotyping is very difficult to break […], at times it starts at home and often times to girls at a tender age where the girl child is told often times that you are a girl and these other things are for boys and men […]. This is reinforced by the mind of the girl child as it is repeatedly said to her by the people she looks up to.”

The importance of mentors and role models to copy is vital to women. This research identified a lack of mentors and role models as a critical obstacle impeding women in Zimbabwe from pursuing a career in ICT and 36 respondents out of 47, making it 76.60% chose it. One key informant put it:

“To me, when compared with boys or men, girls/women are more influenced by mentors and role models in their operating environment. These mentors or role models can be parents, teachers, family, or other inspiring professionals. […] like in my case I was mentored by my father who would tell me every day, that I would succeed in everything that I would do and I would emulate or even better his achievements in his ICT career.”

Another key informant had this to say:

“In my view absence of success stories of ICT-oriented role models to inspire the girl child is a discouraging factor for most girls. […] until such a time that we have such cases of dominant women in the ICT sector, the number of women in this sector will remain low.”

The other one showered praises on some of her lecturers and had this to say:

“When I joined the university, I wanted to study accounting, but I could not make it because I had 12 points and I was told I could try to enrol for Information Systems. I had not known anything about it, but as I am seated here today, I do not regret. […] I was inspired by my 3 male lecturers and 1 female who would always tell us that we are all equal and given anything women should embrace the challenges and conquer. Our ratio to men in class was 1 as to 4 at the time, and because of that on most group projects and assignments, the woman was the leader. I believe this helped me a lot.”

The other obstacles and their statistical percentages are all appearing in Table 2.

**Table 2: Challenges faced by women in the ICT field in Zimbabwe. Source: (author)**

<table>
<thead>
<tr>
<th>ID</th>
<th>CHALLENGES FACED BY WOMEN IN THE I.C.T FIELD IN ZIMBABWE</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Discouragement from all (Men and Women).</td>
<td>43</td>
<td>91.49 %</td>
</tr>
<tr>
<td>2</td>
<td>Lack of mentors and role models.</td>
<td>36</td>
<td>76.60 %</td>
</tr>
<tr>
<td>3</td>
<td>Lack of parental/guardian support.</td>
<td>23</td>
<td>48.94 %</td>
</tr>
<tr>
<td>4</td>
<td>Lack of digital exposure and career guidance from a young age.</td>
<td>45</td>
<td>95.74 %</td>
</tr>
<tr>
<td>5</td>
<td>Being thrown to the deep end.</td>
<td>18</td>
<td>38.30 %</td>
</tr>
<tr>
<td>6</td>
<td>Being spotlighted for any mistake or shot coming.</td>
<td>21</td>
<td>44.68 %</td>
</tr>
<tr>
<td>7</td>
<td>Lack of knowledge on importance of ICT.</td>
<td>32</td>
<td>68.09 %</td>
</tr>
<tr>
<td>8</td>
<td>Gender stereotype discourage young women from staying with their careers and progressing in them.</td>
<td>39</td>
<td>82.98 %</td>
</tr>
<tr>
<td>9</td>
<td>Poor work life balance.</td>
<td>29</td>
<td>61.70 %</td>
</tr>
<tr>
<td>10</td>
<td>Organisational constraints.</td>
<td>14</td>
<td>29.79 %</td>
</tr>
<tr>
<td>11</td>
<td>Male dominated environment.</td>
<td>20</td>
<td>42.55 %</td>
</tr>
</tbody>
</table>

3) **Objective 3: Avail best practices on how to encourage the girl child to pursue the ICT academic path.**

This objective was crucial in this research because, going forward this research can make an impact on the number of girls enrolled in ICT courses and programs. This has a bearing on the number of women in the ICT related careers and professions in Zimbabwe. According to key informants, there is a need
to implement up to 7 best practices in the learner’s environment from school through university. The identified best practices are stated below from A to G.

A. Catch them young
According to key informants, there is a need to introduce ICT and other technical subjects to all learners at a tender age. Depending on the capacity of a country, these technical subjects can be introduced at primary level from grade 5 by simply exposing learners to technical issues simply to generate interest. At that level, learners have not yet developed attitudes toward other learners. Thus, at this level, there less stereotyping.

B. At the beginning give exposure to all learners and there should be no segregation of any sort
All schools and learning canters should expose all learners to technical subjects including ICT at the commencement of the studies.

C. Apply the 50% diversity rule
In this research, the respondents advocated that there is need to implement the 50% diversity rule in all schools, colleges and universities, whenever learners are being considered for enrolment in any technical subject lie computer science.

D. Expose female learners to ICT gadgets at a tender age
The exposure of learners to ICT gadgets generates interest from learners, which may see many girls enrolled in ICT courses and degrees. A lot of awareness - ICT has been associated with a lot of male dominance and some women do not know that they can venture into programming. Ladies can be helped by showing how interesting Technology is.

E. Parental involvement
Parents and guardians were found to be very important in the development and progress of the girl child academically and career-wise. The parents are key pillars of the girl child’s life. According to the key informants, parents and guardians can virtually make or destroy the development and success of the girl child on their own without any aid. Thus, parents were identified as critical; hence, they must be involved in the learning, development, and ICT career progress of the girl child.

F. Career guidance
This research established that most girls do not have access to vital information about careers to pursue. As one key informant put it; ‘We are inspired by what is around us, we become what we are because of the environment around us’ Most women are associated with two major professions, teaching and nursing because that is what is around them. That's there is a need to make it mandatory that in every school career guidance should be conducted at least once every year. This would enable learners to get handy information about encouraging ICT jobs that are there. Other successful stories of women in ICT may inspire confidence.

G. Mentorship
There is a need to identify mentors for the girl child. There should be someone that the girl child can believe in and trust. Learners should be allotted time for mentorship programs. The mentors themselves should be exemplary people, whose lives and general success can be inspiring. Involve women in ICT-related boot camps, hackathons, and other mentorship programs.

4) Objective 4: Avail best-practice cases on how to attract more female qualified workers in-to the ICT sector, how to ensure there is fair progression in their careers, and a good work-life balance.

This was necessitated by the fact that during our pilot study, we established that there were challenges within the workplace that were threatening female ICT professionals from developing and continuing in
their ICT careers. It was sad to note that having come a long way to get into ICT careers, some women would be frustrated and eventually quit in the workplace. Thus, respondents indicated that there is need for having best practice from the point of recruitment and selection throughout the work environment.

A. Apply a 50% diversity recruitment rule

The respondents indicated that there is a need for the government to craft a law that states that, whenever there is a vacancy to be filled in the ICT area in any organization or government department, an assessment of the current establishment should be carried out to establish the current status quo. If the current establishment is male dominated, as in most cases, priority should be given to female applicants and should be only handed to a male candidate upon satisfaction with certain requirements like:

i. Submission of proof that the job was advertised at least twice with the advert specifically seeking and encouraging qualified women to apply.

ii. No female candidate met the specified criteria.

B. Career development programs for women

Government departments and all organisations should be required to put in place career development programs in their working places, which are tailor-made for women development and advancement. Funds should be set aside for sending female employees to different ICT certification training programs. After recruitment, new employees should be given proper induction and after spending 1 – 2 years with the organisation, these women should be given an opportunity to identify an area of specialisation for which one wants to pursue, programming, net-working, database configuration, administration, etc. Based on the chosen area of specialisation, ICT female employees can then be sent for certification training.

C. Organisational restructuring

Historically, the working environment has been structured in a way that is male. At the onset, men were the ones working and women stayed at home. There has been a lot of lobbying, which has seen women occupying positions in the workplace. However, if you take a closer look at the organizational structures in place and such facilities like bars, sporting facilities, and other recreational, almost all of them are male designed. The women came on board and lobbied to be included and be equal; hence there are women sporting activities. All these developments are good and welcome. However, these issues negate the issues pertaining to family women (housewives and mothers). Issues that affect this woman need to be addressed, and this calls for drastic changes in the organizational settings. There is need for inclusion of such things as child-care facilities.

D. Flexible working hours

According to respondents, in the current set up, the working hours are designed for everyone male or female. This is a good set up; however, some women are excluded by this arrangement, which results in these family women feeling reluctant to take certain positions because they are not suitable for their situations. Thus, there is a need for flexible working hour’s arrangements for family women. There is a need for provisional arrangements within organisations for women in special circumstances. These arrangements may enable the activation of certain closes under certain special circumstances.

E. Work life balance

There is a need for organisations to ensure good work-life balance for their workforce, which is more pronounced in professional women. A woman is a worker, wife, mother, cook .... Hence many women suffer from burn out and this has a bearing on their work performance. The shoddy performance has a knock down effect on woman's chances of promotion. Thus, a good work/life balance enables female employees to feel more in control of their working life and lead to employee health and well-being.

6 Analysis, Conclusion and Recommendations

The case study found that the representation of women in the ICT field in the banking and tele-com sectors of Zimbabwe is low with a ratio ranging between 1 woman to 3 men and 1 woman and 5 men
obtained from the case study. However, the pleasing point to note is that research participants indicated that the situation has changed from what it was like 10 to 15 years back where the ratio was anything from 1 woman to 10 men up to no woman and all men when they joined their organisations for the first time. Most respondents were found to be in the age range of 25 – 30 years (57.4%), followed by those in the 31-35 years age group constituting 38.3% and lastly 4.3% in the 36-40 years age group. and from 41 years going up no respondents were found in this study. This shows that ICT is a recent career for women and therefore presents women with a lot of opportunities to explore.

The case study also established that the women in the study were well educated, with 82.98% of respondents having obtained a bachelor’s degree, 27.66% had a Master’s degree, 61.7% had acquired various specialist ICT certifications, and 14.89% had O’ level certificates only. 66 percent of the respondents indicated that they were highly skilled, while 26% indicated that they were medium skilled and a paltry 8% indicated that they were low-skilled. It is interesting to note that when the respondents were asked to select all that apply to them on the aspect of skills acquisition, formal education obtained 72.34%, on the job training was credited with 36.17% and work experience got 23.40%. However, it is disheartening to note that self-training obtained 6.3% and natural ability got 4.2%. This would seem to imply that women are not keen to explore topical ICT issues and learn by themselves, yet we are in the digital era where there are lots of self-tutoring tools. The low percentage of natural ability may imply that women are re-served and are not experimental. This may be because women are afraid of making any mistakes, but these are now just inferences, and this may call for further research to look into these issues.

However, this research also established that women have done well in their duties, as most of them had spent a substantial amount of time in their jobs, as this research established that 55% of the respondents have been there for 5-10 years, 13% over 10 years, and 32% below 5 years.

This research established that, women pursuing a career in ICT face up to a total of 11 obstacles from school, through university up to the work environment. The research participants indicated that of the identified 11 obstacles, lack of digital exposure, and career guidance from a young age is more prevalent, thus, it had the largest number of respondents in the survey with 45 respondents out of 47, thus a percentage of 95.74%. Discouragement from all men and women in society was found to be the second most experienced obstacle among women in Zimbabwe, with 43 respondents, which is 91.49% among participants choosing it.

However, the issue of gender stereotyping was identified as a very critical obstacle as it discourages young women from choosing an ICT career staying in their careers and developing and progressing in that career. According to the key informants, this obstacle could be more devastating as it can be experienced from the home where the girl child comes from and all stages of development like the school going stage, at college/university, and in the workplace itself. This obstacle obtained 39 respondents out of 47 survey participants, making it 82.98%.

This research recommends the adoption of the best practices established in this research. According to research participants, there is a need to implement up to 7 best practices in the learner’s environment from school through university. Catch them young-there is a need to introduce ICT and other technical subjects to all learners at a tender age. Depending on the capacity of a country, these technical subjects can be introduced at the primary level from grade 5 by simply exposing learners to technical issues simply to generate interest. At that level, learners have not yet developed attitudes toward other learners. At the beginning expose ICT technical issues and to all learners and there should be no segregation of any sort at the commencement of the studies.

Apply the 50% diversity rule in all schools, colleges, and universities whenever learners are being considered for enrolment in any technical subject like computer science. Expose female learners to ICT gadgets at a tender age. The involvement of parents and guardians was found to be very important in the development and progress of the girl child academically and career, as most girls do not have access to vital information about careers to pursue. This would enable learners to get handy information about encouraging ICT jobs that are there. There is a need to identify mentors for the girl child to inspire confidence, and these mentors should be exemplary people, whose lives and general success can be inspiring. Involve women in ICT-related boot camps, hackathons, and other mentorship programs.

The study also recommends the availing of best practices for the work environment, which may assist in the attraction of more qualified female workers into the ICT professions and ensure there is fair progression in their careers, and a good work-life balance. Government departments and organisations should apply the 50% diversity recruitment rule in their work places. The government should encourage all organisations to put in place careers development pro-grams in their work places, which are tailormade for women development and advancement. Current organizational settings do not cater for the family woman, hence, issues that affect this woman need to be addressed, and this calls for drastic
changes in organisational settings by including such things as childcare facilities. The research further recommends implementation of flexible working hour’s arrangements for family women. There is also a need for provisional arrangements within organisations for women in special circumstances. These arrangements may enable the activation of certain closes under certain special circumstances. Organisations are also encouraged to also from time to time look at the work/life balance issues of employees, understanding that a woman is a worker, wife, mother, cook .... Hence many women suffer from burnout and this has a bearing on their work performance. The shoddy performance has a knock down effect on woman’s chances of promotion.

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7 References


