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### 8.2.3.2. UTL Employee Gender Disaggregated Statistics

Table 8 shows a similar trend in the public sector, with the numbers of women again dropping as they advance in career level. At Junior Officer Level, the gap between men and women was relatively narrow but from the managerial positions onwards, the gap drastically widened. The overall trend shows that the numbers of women are lower than those of men at each subsequent level with no exceptions. Thus, the glass ceiling does not only apply in the private sector in which government equity policies may be more loosely applied but also in the public sector in which we might expect greater compliance.

**Table 8: Uganda Telecom Limited Gender Employee Disaggregated Statistics**

| Occupational Category | Male | Female | Total | % of Men | % of women |
|-----------------------|------|--------|-------|----------|------------|
| Chiefs                | 6    | 1      | 7     | 86       | 14         |
| Heads of Department   | 17   | 3      | 20    | 83       | 17         |
| Assistant Managers    | 50   | 15     | 65    | 77       | 23         |
| Junior Officers       | 212  | 182    | 394   | 53       | 47         |
| Off-roll Staff        | 52   | 120    | 172   | 30       | 70         |
| Total                 | 337  | 321    | 658   | 51       | 49         |

Source: UTL Data (2014).

Women are also under represented in managerial positions at the study institutions, that is, Makerere and Busitema Universities. Table 9 shows that fewer women assumed top executive, managerial, teaching and administrative level positions. Out of 31 Lecturers at the College of Engineering, Design, Art and Technology, 27 were men and 4 were women. Moreover, out of 18 Lecturers on the Bachelor of Computer Engineering program at Busitema University, 16 were men and 2 were women. These findings resonate with those of Shuttleworth et al (1992) who examined the positions of women in the computing industry in the United States and in the United Kingdom. Their findings indicate that 10% of males and only 3% of females in the survey had achieved managerial positions.

**Table 9: Women and Men in Top Management and Faculty of Institutions and Information Technology Departments of Study Institutions**

| University and Department  | Men | Women | Total | %tage |
|--|-----|-------|-------|-------|
| Department of Computer Engineering (Busitema University)                 | 16  | 2     | 18    | 11    |
| College of Information Technology Top management (Makerere University)   | 4   | 3     | 9     | 33    |
| College of Information Technology Directors (Makerere University)        | 7   | 4     | 11    | 36    |
| College of Engineering, Design, Art and Technology (Makerere University) | 27  | 4     | 31    | 13    |

Source: Makerere University, Busitema University (2013).

Overall, the transition patterns suggest that there is an under representation of women at every level of career development. That is, at admission, graduation, transition into the ICT industry and the subsequent progression to the top executive level. The admission rates show that the percentage of women is lower than that of men at the beginning of the career path. Although few women are admitted into ICT related programs, the ratio of women continues to progressively reduce as student's progress on the career path. However, it was observed that women made up the greater portion of employees at the off-roll staff level<sup>97</sup> in UTL. That is, they constituted up to 70% of the population while the men made up 30% of employees at off roll staff level. It is important to note that even if off roll staff work in the ICT industry, most of them do not possess degrees in ICT related fields.

On the contrary, the trajectory of men showed an overall progressive increase in percentage representation at each stage of career advancement. In MTNU for instance, men made up 64%, 69% and 78% of highly skilled technical, professional and executive managerial levels respectively. This pattern lends credence to the idea of the leaky pipeline in the private, public and university sectors (Castaño and Webster, 2011; Etkowitz, and Ranga, 2011;

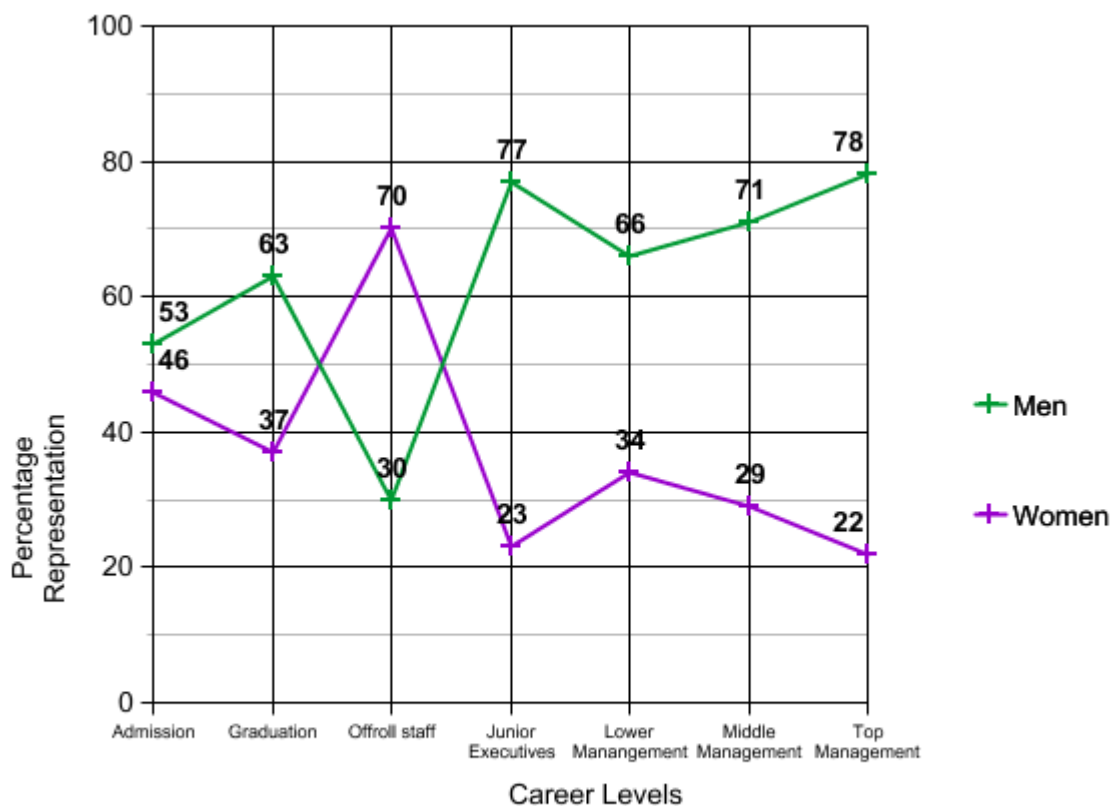
<sup>97</sup>The off roll level is also the lowest of the career levels and this is manly comprised of call centre representatives and data entrants.

Varma and Hahn, 2007; Valenduc, 2011) which has been long observed in science and technology fields)

### 8.2.4 Overall transition patterns of ICT graduates

**Graph 15** presents the overall transition patterns from admission, graduation to the ICT industry in a gender perspective. To come up with the transition pattern graph, totals of Admission and graduation data from Makerere and Busitema Universities and the percent total of women and men employees at MTNU and UTL were used.

**Graph 15: Overall Transition Patterns of ICT Graduates**



Source: Secondary Data MTNU, UTL, Makerere University, Busitema University 2010-1015

### 8.3. Conclusion

This chapter has showed that more men than women are admitted into ICT related academic programs at Makerere and Busitema universities. Socio-cultural factors, stereotypes and perceptions inform this trend particularly due to the way women and men are differently constructed. The labelling and stereotyping of women as intellectually weak and therefore unable to excel at ‘hard subjects’, implies that women are not suited for ICT work. Moreover, the construction of men as strong and superior, and therefore able to excel at ‘hard subjects’,

indirectly informs the nature of programs that many men tend to gravitate towards. In addition, there is a pervasive ‘masculinization’ of science and technology which is influenced by gender specific social cultural stereotypes. Even if on a few occasions women supersede men in some courses at the admission phase, many women drop off at every subsequent stage during their careers. These dynamics in the ICT industry in Uganda seem to show that the digital divide structured along gender lines constitute a challenge for equitable development. Having analysed the nature of the gender digital divide in the ICT industry, the next chapter concludes the study by revisiting the central arguments and findings of the study. It also highlights the key findings and the contribution of the thesis to knowledge.



## **CHAPTER 9: CONCLUSION**

This dissertation has revealed that gender dynamics in the emerging ICT industry in Uganda unfold in convoluted and complicated ways and is riddled with numerous challenges. The roots causes of the discrepancies and gaps in access to ICT and related services emanate from the convoluted traditional and historical socio-cultural practices which differentially constructed both men and women in pre-colonial Ugandan societies. Further, these social differences were not only reproduced and institutionalized throughout the colonial period but have also been sustained by the post-independence governments. Even after 50 years of independence, the gender-blind or gender-skewed institutions and structures created by the British colonial government in Uganda continue to significantly inform the gender dynamics in Uganda especially in the contemporary period.

Thus this dissertation has argued that understand the gender-related dynamics in contemporary Uganda and the perceptions that underpin them, it has been necessary to comprehensively explore the historical and cultural foundation from which they spring. The present perceptions and dynamics on gender, as Musisi (1992) points out, are connected to historically-situated events and realities. Elsewhere, Misa (2010) justifies the need to historicise the ICT related research by noting that effective interventions to improve professional practices in computing and other technical fields require greater historical awareness and understanding. A detailed exploration of the traditional social organisation of Uganda that has been undertaken by this dissertation has proved to be central in disentangling and/or revealing the specific cultural perceptions and practices that shaped and continue to inform gender dynamics, including the interpretation of ‘femininity’ and ‘masculinity’ and the resultant allocation of specific roles and tasks to women and men.

The emerging findings of this dissertation is that the marginal and peripheral positions of women in the ICT industry in Uganda are largely informed by and spring from the rooted convoluted traditional and historical socio-cultural practices, and differential construction of men and women. This study has established that it is through the processes of social construction—specifically socialisation, internalisation—and reproduction of structural social norms, rules and values through structuration that socio-cultural stereotypes are formed and maintained. Often, the ways in which stereotypes are manifested evolve to take on new subtle and subliminal forms which are acceptable with changing times, defying and transcending ‘modernity’ and persisting through pre-colonial, colonial and post-colonial periods.



Moreover, not even modern education can completely reverse the psychological implications of socio-cultural stereotypes on women in terms of obstructing them from taking their peripheral position in the ICT industry right from education to the labour market. Women live with the impacts of the socio-cultural stereotypes throughout their lifetime. Cultural practices and stereotyped images work against women to the extent that even the 'highly educated' women (and men) in positions of influence often relapse into support for traditions that clearly oppress women, including in policing gender.

Another central argument underpinning these gender related stereotypical perceptions is that there are differences in innate biological, mental, physical and emotional traits and abilities between men and women. These differences are 'believed' to make men and women suitable for specific roles, responsibilities and work but not others. That is, sophisticated and intellectual careers especially those that involve the use of sophisticated gadgets outside of the home are for innately intelligent, ambitious men. Conversely, innately intellectually weak, nurturing women are the best fit for the position of home manager or at best assistants to men in the work place. Further, this dissertation reveals that although socially constructed and 'imaginary', these constellations have come to be accepted as 'real and true' in the home, the school and at work in the broader society. The socially constructed' attributes subsequently determine the way social, economic and even political issues in society are structured and shared including the differential pursuance of particular academic programs and types of work done by men and women.

Furthermore, this study established that most of the women in the ICT industry in Uganda have achieved equal status with men, not through exercising their agency as active human beings, but through affirmative action. Data from interviews indicated that there is a general fatigue with discussions about affirmative action as several ICT professionals expressed the view that national affirmative action programs had achieved their goals. In fact, many recommended that it was high time that affirmative action programs were stopped because they had achieved their goals as evidenced by the increasing numbers of women in positions of power mostly in government ministries, department and agencies. It emerged from interviews that ICT professionals and managers that affirmative action was only relevant for women in rural areas but not urban educated urban women. However, this dissertation shows that such arguments are far from the reality of many highly educated women struggle daily to survive in an ICT industry dominated by men and oppressive to women. Socio-cultural stereotypes affect highly qualified professional/educated women in the ICT industry. This is

vividly evidenced by the gender specific challenges encountered by some of women in the emerging ICT industry.

The drawback to national affirmative action policies is that policies are implemented at one single point—entry into the university and particularly by adding the 1.5 extra points on the marks obtained by women—and too late (on when the women are seeking admission to the university). The key issue is that at the point of entry into university the young women would have already been socialised and initiated into the world of ‘gender insensitive’ socio-cultural stereotypes. Even after exit from the university into the ICT labour market, there seems to be no functional affirmative action policies to shoulder young women graduates from the shocks arising from the constraining social structures, rules, norms and stereotypes. Socialisation begins early in homes and common societal spaces, and goes on throughout the lives of boys and girls. In addition, emerging from findings was that discrimination and oppression of women take indirect, subtle and psychological forms that are not easily recognisable. Therefore, the few initiatives undertaken by the state when women have already been socialised and at a later point, cannot register significant gains in allowing women a fair chance to excel as technical professionals in the ICT industry.

Moreover, affirmative action policies are not only seen to be missing in ICT companies but they seem to be misunderstood by managers and or key decision makers. Managers hold the view that affirmative action requires giving opportunities to incompetent, unqualified or poorly qualified women simply because they are women. While commenting on the affirmative action policies for gender equality, several managers were quick to claim that the companies which they represent are gender neutral and that their policies are merit-based.

Clearly emanating from the data is that women were often described in negative terms, for instance. For instance, a seasoned Manager in one of the telecommunication companies described a woman who often asked a lot questions as opposed to her male peers as ‘slow’. Instead of conceptualising the questions as a ‘the quest for clarity’, and even when a more positive term, such as inquisitive, cautious or detail oriented, could have been used, the Manager defined her in the opposite manner. Although asking questions for clarity in a situation of uncertainty is a positive quality, the manager termed it as a negative practice of women which can be annoying and time wasting. It thus appears that positive qualities in women are easily contextualised in a negative manner. At the skills acquisition level, young women were discriminated against and marginalised in institutions of higher learning because

of the socio-culturally informed stereotypes. For instance, excellent performance of young women at university was attributed to her close association with a brilliant male classmate. It was inconceivable for some university Lecturers to believe the women can perform better than men in ICT programs. This is because of pre-misconceptions informed by the socio-culturally rooted stereotypes that define women as poor performers in science

Informants, both men and women, largely agreed that the ICT industry is rigorous and time consuming and thus placing heavy demand on the professionals. It was argued that ICT professionals must be on call 24/7. Women were described as unsuitable for work in this rigorous and demanding industry because of their triple roles as mothers, wives and providers of the household (Moser, 1993). These responsibilities directly and indirectly demand that they must leave work early enough to take care of their domestic chores and wifely duties. Men on the other hand are who are socio-culturally exempted from domestic encumbrances can have all the time to successfully engage in the rigorous and demanding work that characterizes the ICT industry.

The socio-cultural definition of a man's roles and responsibilities directly facilitates them with time and confidence to pursue careers. In contrast, society encourages women to pursue careers 'inside' of the home. It indirectly does so by defining the roles of women and limiting them to the confines of the home. At the same time, it does so by not providing them with the required time-slots. So, women are confined into choosing between careers and family. Even in instances where governments have run fully-fledged programs to promote gender equality, the very structures and institutions that are to promote gender sensitiveness lead to the over burdening of women. For instance, a 60-day paid maternity leave for women and 4-day paternity leave for women indirectly pushes much of the childcare burden and responsibility to the woman, and directly exempts men. Singlehandedly shouldering the multiple burdens at household and community level obstructs women from pursuing careers out of the home. It reproduces the 'working husband' and 'stay at home mother' stereotype.

In many cases where women are confronted with negative stereotypes that threaten their career progress, they often devise 'private' and 'individual' covert and/or overt mechanisms to confront the challenges that they encounter. While some women successfully navigate the challenges of the demanding ICT jobs, many fail to effectively do so. They are not only forced to give up on their employment, but many take on other jobs even when they are qualified undertake ICT and related work. This directly facilitates the phenomenon of the

‘leaky pipeline’. In this research, it was revealed that socially constructed stereotypes and the power dynamics that underlie therein often reward women who accept the status quo— in other words exhibit inferior qualities— and men who exhibit aggressive qualities. The differential rewarding of men and women is based on the social and cultural norms as this is what it dictates. Strongly emerging from the thesis is that women are not passive observers or recipients of their oppression. Many sub-consciously or unconsciously actively participate in the oppression of fellow women and in self-censorship through ‘policing gender’. Many women urge for and compel other women to comply with oppressive and gender insensitive socio-cultural stereotypes in society.

Socialisation through social structures and the policing of cultural norms and rules tame and domesticate young women right from a tender age. The ‘home’ is the starting site for the socialisation and domestication process. Parents play a key role in the socialisation of girls and enforce a directly opposite socialisation process for boys. In school, teachers accelerate and reinforce the exclusionary socialisation processes as they continue to send subtle messages informed by their own socialisation cycle. Because teachers and parents are part of society and have been subjected to the same stereotypes, socialisation and social construction sequence, they effortlessly engage in practices that further exclude young women. The discriminatory messages are subtle and affect women individually and in private spaces, the law and public policies do not capture such acts. For that matter, many women are instead forced to create individual coping mechanisms. This is a burden that men do not typically have to deal with as they are not subjected to negative stereotypes that women often must overcome. The ‘social space’ for men that is free of social and cultural encumbrances permits men to concentrate on their rigorous and demanding ICT work with fewer or no interruptions. Here an exhibition of societal structures impeding that obstruct the progress of women is displayed yet again.

The ‘Gender digital divide’ originates from and has been accentuated by a combination of forces particularly the manner in which men and women are differentially constructed in societies. The socio-cultural norms, customs, beliefs and practices which construct men as superior, sophisticated, ambitious and hardworking vis-à-vis women who are constructed as inferior, simple minded, less ambitious, less hardworking and best suited for care of children and the home are among the major causes of the digital divide in Uganda. Directly related to this is that the ICT industry is constructed as masculine and therefore associated with sophistication and intellectual prowess, qualities that men are perceived to possess. On the

contrary, society constructs and social structures associate women with simple mindedness, intellectual weakness and lack of ambition, socially constructed qualities that directly and indirectly infer that women can only thrive in 'ladylike' careers and unquestionably those out of the ICT industry. These contrasting socially constructed characteristics largely entitle men to fully engage with technology and disqualify women from engaging with it.

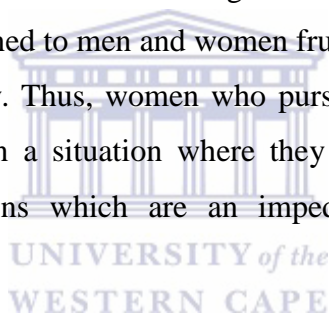
Gender dynamics in the ICT industry in Uganda are multi-layered as underlying forces behind the dynamics interact with and reinforce each other in diverse and profound ways to entitle some categories (men) and deny others (women) access to and use of technology. The findings from this study indicate that the digital divide continues to be a problem as more men than women are admitted and therefore graduate from ICT related academic programs at Makerere and Busitema Universities. The unequal admission and graduation ratios of men and women are replicated in the ICT industry where the men constitute largest percentage of employees in MTNU and UTL when compared to women. The few women who try to engage in the ICT industry often leave at the initial stages of their career, a situation which scholars have dubbed as 'leaky pipeline' (Varma et al, 2008; Valenduc, 2011).

Differences in admission and graduation rates as well as in employment ratios in the ICT industry emanate from the 'masculinization' of technology, socio-cultural norms, customs and practices which indirectly dictate that to be a man and masculine naturally makes one compatible with technology, while to be a woman and feminine naturally makes one incompatible with technology. However, this study has showed that socially constructed differences are not real as there are instances where women ably challenge and navigate the social cultural norms, customs and practices by exercising their agency to excel in the ICT academic programs and in the industry.

Of significance to this inquiry is that a multiplex of factors directly and indirectly influence the decision of men and women to pursue a career in ICT. Some women do not fully engage in the ICT industry because they are limited by 'gender based censorship' which, in this context, means that women tend to gravitate towards courses which society constructs as feminine even when they qualify, have the interest and ability to excel in courses that are perceived to be 'masculine'. Other women are less motivated to take on ICT academic programs due to lack of role models from whom to draw inspiration. To some, the major source of inspiration and motivation is parents and these play a significant role in the career

choices made by young men and women. Moreover, the 'leaky pipeline' scenario among young women at university arises from the misconceptions about the ICT industry. For instance, the misunderstanding by some women that all engineers carry and pull heavy cables or that they have to climb up high pylons which are against the socially constructed 'ladylike' character. In the processes of choosing to pursue a career in ICT and during their career in the ICT industry some women reproduce and reinforce socially constructed stereotypes which ultimately work against them. Women reinforce negative stereotypes in a number of ways including accepting the role of 'sole caretaker of the home', choosing to specialise in academic programs that society constructs as 'easy' and therefore feminine, and pursuance of careers outside or on the periphery of the core ICT industry even after graduating with good grades from ICT degree programs. .

The crosscutting issue in this study is that gender specific socio-cultural stereotypes downplay the capabilities of women while elevating the abilities of men in the ICT industry. The directly opposite labels attached to men and women frustrate the achievements of women professionals in the ICT industry. Thus, women who pursue careers in the ICT industry in Uganda often find themselves in a situation where they must disprove numerous gender specific socio-cultural perceptions which are an impediment to their recruitment and advancement in the ICT industry.



Despite the negative labelling and stereotyping, some women do not merely give in to the socially constructed stereotypes, socio-cultural norms and practices. Findings show that women are 'active agents who deploy their agency to challenge and navigate these negative and disempowering characterizations. Many have 'crafted' equally 'vicious' and full-blown individual, covert and overt, mechanisms to navigate the negative socially constructed stereotypes and perceptions to advance and build a career in the ICT industry. Some women have managed to exercise their agency by mobilizing a rich repertoire of 'everyday forms of resistance' (Scott, 1986) including juggling between family and work (ICT career), others have resorted to ignoring the discriminatory acts that they are faced with on a day-to-day basis to get on with their work, tactfully negotiating with their managers, supervisors and clients to be allowed to perform tasks that are considered too difficult for women to accomplish is the other strategy that some women have adopted. The intention is for women to defy and redefine the stereotypical perceptions. Still, other women admitted to intentionally and cautiously trying to adopt the behavior of men as a survival tactic in the

industry. The diverse forms of resistance indicate that women possess diverse abilities and that they can ably thrive in the rigorous ICT industry.

Although the categories of women described above seem to succeed in their quest to remain in the ICT industry, it is important to recall that the strategies that they employ to survive and even thrive in the ICT industry are individual and other women have simply given up their careers in ICT for family or have opted to join other professions. These women are therefore obstructed and ultimately excluded from effective participation in the ICT industry. Multiple actors at varying levels participate in the production and reproduction of the 'gender insensitive' stereotypes that simultaneously disempower women and empower men. Of significance is that production of the gender insensitive and disempowering stereotypes is not only done by men at policy making/government level and/or cultural figureheads in communities. Women too are heavily involved in the production, perpetuation and even 'policing' of gender stereotypes either cautiously, sub consciously or unconsciously. They also participate in and facilitate the processes of structuration by repeating the existing patterns through socialization and constantly reminding young women to be submissive to men.

Training of women for subordination is deliberate, organized and starts from the time of birth. From a very early age, young girls are taught that their mission is to please men. Girls are implored to be submissive to husbands and be good caretakers of the household and deliberate steps are taken to ensure that they master their duty of being assistants to the men in their lives. Further, women are socialized into believing that men are providers who can provide beyond measure but only for women who please them. Conversely, men are socialized into believing that they are the providers of food and security for women and the family, and that they are excused from all household affairs. Men are also made aware of the power that they possess over women at an early age. The varying socialization processes means that women are trained to shoulder the domestic burden alone. So, building a career for many Ugandan women is a luxury preserved for men and a few exceptional women. Structures dictate that the burden of childcare lies solely on women. Men can help as and when they want to but it is not mandatory. Accordingly, men on the other hand are encouraged, facilitated and guaranteed by society structures and rules to pursue a career outside of the home uninterrupted as they are exempted from doing housework.

## **9.1. Contribution to knowledge**

### **9.1.1. ICTs as an opportunity for structuration**

From the findings of this study, it can be said that ICTs present an opportunity for structuration to close the gender gap in many developing countries including Uganda. ICTs present an opportunity for re-socialisation and restructuring of gender relations. When interacting with ICTs, women and men alike are presented with an opportunity to contest and or renegotiate their positions and roles in the industry and indeed in the wider society. Yet, ICTs also present the opportunity for men and women to cement their current respective positions with women occupying a marginal position and men taking on a privileged position.

Whenever men and women in the ICT industry interact with ICTs, they are faced with two choices. First, to interact with ICTs in a way that society dictates adhering to the expectations of society. Second, to interact with technology in innovative ways without consideration for the expectation of society. Cameron (1997) argues that gender is regulated and policed by rather rigid social norms, but this does not mean that men and women can only be socialised by programmed by early socialisation to repeat forever the appropriate gendered behaviour. Women are like conscious agents who may engage in acts of aggression, subversion and resistance. As active producers, rather than passive producers of gendered behaviour, men and women may use their awareness of gendered meanings, meaning agency, that attach to ways of speaking and acting to produce a variety of effects.

This dissertation has contributed to knowledge by providing the basis for a deeper understanding of the gender divide in the ICT industry in Uganda by disentangling admission, graduation and transition patterns from university to work and expanding the notion of a gender digital divide. It also examines the factors that influence the choice of an ICT career, stereotypes that facilitate the marginalisation of women and the response mechanisms that some women adopt to challenge the stereotypes. In so doing, the thesis contributes to knowledge in five diverse ways. First, the thesis provides insights into the extent and nature of the gender digital divide in Uganda particularly in ICT employment. Research question 1 seeks to understand the admission and graduation patterns for men and women in undergraduate ICT related programs at Makerere and Busitema Universities in Uganda.



Research question 2 set out to understand the transition patterns of ICT graduates of Makerere and Busitema Universities as they move from university into the ICT industry. So, both research questions are plausibly answered in the thesis by admission and graduation patterns and subsequent progression of men and women from university to work. In this way, the study establishes a transition pattern followed by men and women in their career path in ICT. Although this kind of gender disaggregated data is essential for policy formulation, in the case of Uganda, it is not readily available in organised forms that policy makers can easily reference. The findings which indicate that women are underrepresented in the ICT industry of Uganda can be important for informing policies that focus on the provision of universal access to ICTs as well as those that promote gender equality specifically at work. However, a wider and more comprehensive study that includes more universities and employers is necessary because this study was limited in scope as further explained in the 'limitations' section. Specifically, the involvement of women in small, medium and micro ICT enterprises is not discussed in this thesis.

Secondly, this study has provided a nuanced understanding of how the rooted historical and traditional socio-cultural stereotypes systematically and discreetly continue to exclude women from the ICT industry in Uganda and perhaps other developing countries specifically on the African continent even in the contemporary period. It explains how through the processes of social construction, women in Uganda have been constructed as modest and weak both intellectually and physically throughout history. Men on the other hand have been constructed as sophisticated, intellectually sound and physically strong. The implication of this 'skewed' construction process for the ICT industry is that men are perceived as naturally well suited for the rigors of the demanding ICT industry which requires strong intellectual abilities, physical strength and sophistication, qualities that men possess by nature but women lack. These socially constructed perceptions are maintained through the processes of structuration by which constructed perceptions are reproduced. By exploring socially constructed stereotypes, research questions 3 and 4 are adequately addressed. Thus, the factors that influence women and men to choose a career in the ICT industry and the socio-cultural stereotypes and perceptions that facilitate and/or obstruct the progress of men and women in the ICT industry in Uganda are examined.

Third, this thesis contributes towards research that shows the masculinisation of science and technology and ICT. Findings from this study indicate that ICT in Uganda is still largely considered a domain for men. Women are viewed as less suited for the rigors of what is often

referred to as a 24/7 industry. The widespread but often unspoken perception is that the reproductive role of women and their role as wives are the most vital role that women can play. The finding that ICT is perceived as a territory for men provides a basis for the formulation of policies that aim to increase the participation of women in science and technology fields. This study also clearly shows how gender is policed in Uganda and in the ICT industry in particular.

Fourth, by merging ICT and gender, this study contributes to a dimension of the digital divide which has not received substantial attention specifically in Uganda. Most of the studies that have been conducted in Uganda focus on one dimension, that is, either ICT or gender but not both (Cleaver, 2002, Ssewanyana, 2007). Further, other studies that have been undertaken focus on one aspect of ICT, such as, access and end use (Madanda et al, 2007, Diga, 2007) either in rural or urban areas but not ICT work or employment. In addition, some focus on ICT education but not work (Wells and Wells, 2007). This study has focused on ICT education (ICT skills acquisition), ICT employment and gender in both rural (Busitema University) and urban (Makerere University) settings. In this manner, it provides useful insights into the gender divide that exists in the human resource of ICT industry, achieving the overall objective of the study to examine gender related dynamics among men and women graduates of ICT. By achieving the four goals above, this study has contributed to existing debates and discourses around gender, ICT, STEM education, education in general and the ICT labor market.

## **9.2. Policy recommendations and other implications**

This study has established that women continue to be discriminated and marginalised in Uganda, particularly in the ICT industry even though affirmative action policies and national gender equality campaigns have been implemented for over 20 years. The findings of this study indicate that discrimination majorly stems from traditional socio-cultural beliefs, and historically informed practices which have elevated men over women. In addition, data from the study revealed that some parents still hold traditional views of women and discourage their daughters from pursuing careers in ICT. Data from interviews and Focus Group Discussions revealed that women who manage to enter the industry feel that they lack the confidence because there are no women that they can look up to. Study findings have shown that women at university particularly find programming intimidating because of the few numbers of women they see teaching or doing it. Research findings indicate that companies

operate without any gender considerations and conduct business with a claim of gender neutrality. Evidence from interviews and Focus Group Discussions points to the fact that women ICT professionals are over-burdened at home particularly with child care. The men on the other hand do not seem to understand that they can help women with child care.

Affirmative action and gender equity campaigns in Uganda seem to be uncoordinated with no systematic procedure followed. Interventions to remedy the underrepresentation of women are often made at advanced rather than the initial stages of education. For instance, efforts to increase the number of women in science and other fields target students at the point of entry into the university. The policy is general to all women in all programs including arts and humanities programs, with no special consideration for women in science technology and mathematics where women are grossly under represented. Although the government has designed programs to introduce computer studies in secondary schools, these initiatives are general with no specific focus on young women.

Therefore, the government approach should be more systematic, aggressive and specifically focused on increasing the numbers of women in ICT education and work. In addition, national interventions should be made early rather than later. This means that the specific targeted policies should focus on attracting young women to the ICT industry right from primary schools and not just at secondary and university level. After recruitment, activities to continue guiding and encouraging young women to stay in the industry should be designed. This means that the government should come up with specific policies that focus on educating and demystifying that what the local populace and women in Uganda perceive as 'real' differences between men and women are mere social constructs that do not reflect the 'reality'.

The emphasis here should be that men and women have the same abilities, can perform the same tasks and can therefore achieve equally at any given task. Government needs to carry out sensitization campaigns parents and caretakers, discouraging them from telling young girls that they are not well suited for science and technology fields. There is need for girls to have role models who are women. Therefore, deliberate efforts to make successful women in ICT visible to young women should be made as this will inspire and motivate them to pursue a career in ICT. The government should require government and private companies to have policies that contribute to national policies that are aimed at achieving gender parity. It is important for managers of ICT companies to make themselves conscious of the unconscious

biases that often permeate industrial settings. Finally, there is need for government to re-evaluate policies that send subtle discriminatory messages. For instance, there should be efforts to revise the employment act and increase paternity leave days for men. This will send a signal that men are expected to participate in taking care of their families in the home and that it is okay for them to do so, especially the younger generation. As the employment law stands today, women are entitled to 90 days of maternity leave while the men receive only 4 days.

### **9.3. Limitations of the Study**

This study is limited in many ways: One, it focuses on only two universities and two telecommunication companies, implying that the findings only apply to these specific case study universities and companies. Two, data on admission and graduation was limited to only 5 years and five academic programs in the case of Makerere University, and 5 years and one academic program in the case of Busitema University. This indicates that this information provides only a partial picture of the gender digital divide in the ICT industry in Uganda. Therefore, a nationwide study that is not only limited to telecommunication companies and universities is needed to establish the aggregate participation of women in the ICT industry over a longer period. This will provide a broader understanding of the gender digital divide in the country for appropriate policy formulation to tackle the growing vice of exclusion and marginalisation of women in the industry. Further, qualitative methods were employed to collect, analyze and present data from this study. However, the methods were unable to quantify the extent, trends and severity of the issues described in this study. In this light, quasi statistics were utilized to illuminate the depth, extent and or severity of issues discussed.

### **9.4 Conclusion**

The gender related dynamics evident in the ICT industry are a direct reflection of what transpires in the wider Ugandan society in gender terms. Gender related dynamics are similar in the home, school and at work where women have access to opportunities but lack enough freedom to fully utilise the opportunities. Thus, as the relationship between men and women in the Ugandan society stands today and indeed in the ICT industry, women are given access to opportunities work in the ICT industry but the freedom to explore these opportunities is grossly limited in many ways. The constraints to the freedom of women to explore opportunities lie in the domestication and feminisation of women by society on one hand and

the masculinisation of men and work outside the home and particularly, work in the science and technology sector. Here, the definition of feminine and masculine is key as femininity is made synonymous with simplicity, weakness and masculinity is made synonymous with sophistication, intelligence and power.

While women are given the opportunity to freely go out of the home and find jobs, the weight which they shoulder as they undertake various forms of household chores including cooking and childcare limits the time that they can spend at work and the greatly reduces the effort and concentration with which they work. In school, girls are granted the opportunity to study the same subjects and in the same schools as boys. However, subtle messages with ‘instructions’ of the subjects that best suit the “feminine” nature of the socially acceptable girl and woman are variously disseminated. These messages discreetly and indirectly but quite effectively limit the freedom of girls to freely choose a career. The indirect messages either from teachers, parents or peers (both men and women), dictate the choices made by young women and often, these choices are not in science and technology. Usually, large pools of young women choose arts and humanities subjects over science and technology ones. This is because science and technology is perceived by society as masculine. At work, not only in the ICT industry but in other professions as well, equally qualified men and women seem to be offered equal access. However, some tasks are reserved for men and others for women only because of the unwritten societal expectations that limit the freedom of women to perform some tasks that are believed to be masculine and demand intellectual prowess and time, qualities that women are believed to be lacking. The men in turn, are exempted from perceived simple and consequently feminized tasks which are then reserved for the women in the industry.

In many communities in Uganda, women are deliberately socialized, trained and groomed in subtle ways to assume a subordinate position to men in every sphere of life. The initial socialization processes limit the choices of women and trains women to believe that they are different from and inferior to men in all aspects, be it social, economic or political. Therefore, the ‘invisible hand’ of socialization which makes women subordinates of men is at the core of the fabric of society. For many women, it is an invisible but real barrier to the attainment of diverse opportunities including those in the ICT industry. Socially constructed stereotypes and the power dynamics that lie therein often reward women who accept the status quo— in other words exhibit inferior qualities— and men who exhibit aggressive qualities. Women who accept an inferior position are praised as real strong African women and those who

challenge the inferior position that most women are relegated to are referred to as rebellious and lacking in the true qualities of a ‘true African woman’— simple, humble, submissive long suffering ,sacrificial, family oriented. This means that a true African woman should never be seen to aspire to things that are not simple like technology and science. That a true African woman should be humble and submissive, always ready to take instruction from her husband who takes care of her. That true African women should be able to shoulder the burden of having many children and taking care of them without much help from her husband. That she should give up the pursuit of her dreams and knowledge and neglect her talents because her most important role is to be a mother and a wife. The differential rewarding of men and women through gender policing ensures that both men and women observe their socially engineered expected societal roles.

While it is true that ICTs have the potential to spur many social changes, this can only happen when appropriate and gender sensitive policies and programs are appropriately formulated and applied. It is often argued that for ICTs lead to development, there should be suitable pre-existing conditions like appropriate infrastructure and favourable policies (Toyama, 2011). In this case, conditions that facilitate equal access to and freedom to use ICT and related opportunities by men and women have to be instituted in order to realise the desired changes and development. In other words, technology only serves to amplify and/or reinforce the already existing conditions—equality or inequality—rather than change or ameliorate them.

Toyama (2011) observes that ICTs do not provide a substitute for missing institutional capacity but serve to amplify the existing gender structures in the Ugandan society and identifies the consequences of failure to align institutional capacity and human intent and the expectation that ICTs are a panacea to development challenges. The first consequence is that technology cannot substitute the missing institutional capacity and human intent. Second, technology sometime amplifies existing inequalities especially with the paucity of gender-tailored policies and frameworks. Third, technology projects in developing countries are most successful when they build on and amplify already successful development efforts as opposed to when they seek to fix, provide or substitute for broken or missing institutional elements. Juxtaposed to this study, ICTs in Uganda cannot fix the gender divide which is rooted in the socio-cultural norms and practices, daily socially contracted language which looks down on women as opposed to men, and societal rules. In this case, it seems the uptake of technology between women and men is merely amplifying the already existing gender divide.

In addition, Toyama (2011) notes that the effective use of technology requires a foundation of competent and ‘well-intentioned’ people. The result is that appropriate technology amplifies their capacity and leads to significant achievements. On the other hand, Toyama (2011) notes that in circumstances that are characterized by negative human intent, such as corrupt government bureaucrats, minimal capacity and denial of sections of society to basic education, no amount of technology will lead to positive change. This aptly fits in the findings of this study in that introduction and application of technology in a society where perceptions of the local people are still informed by patriarchy and policies to promote gender equality are lacking or not well implemented, women will continue to be subordinate to men and subsequently excluded from opportunities that ICTs present. This will continue to manifest in the low population of women in the industry as users and consequently as producers of ICTs.

Hence, while ICTs are peddled as a strong vehicle for development especially in developing countries including in Uganda — where it is often claimed that ICTs are a panacea for eliminating poor social service delivery, enhancing health service delivery and education, spurring business opportunities, promoting good governance and ensuring prosperity for all — evidence from this research indicates that ICTs can provide opportunities and prosperity to some categories of people, in the case of this study, men and not others, in the case of this study, men. Women therefore continue to occupy peripheral and marginal positions in the ICT industry in Uganda for as long as they continue to occupy marginal positions in society in general.

The other issue which strongly emerges from this thesis is the complex tension between women themselves and the broader society in which they are born, raised and socialized. The thesis shows that some women progressively deploy gender-customized strategies, to challenge the socio-cultural obstructions that could thwart the realization of their engineering aspirations. However, the overwhelming cultural apparatus in the context of multiple and complex socio-cultural rules and structures that permeate the Ugandan society have made many women to internalize their position in society. Culture has made many women to resign to their fate of marginalization and powerlessness and this has ultimately placed them in a particularly marginal and powerless position. In the context of this study therefore, women will continue to occupy peripheral and marginal positions in the ICT industry in Uganda for as long as they continue to occupy marginal positions in society in general.

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## **APPENDIX: Research Instruments**

Formulation of this research instrument has been guided by the specific research questions that this research intends to answer. The specific research questions include: (1) what are the numbers and proportions of men and women students at enrollment and graduates in Uganda? (2) What are the transition patterns of men and women graduates as they move from university into the work environment? (3) What are the gender-related societal perceptions about the ICT job market in Uganda? (4) Do gender dynamics facilitate or constrain transition into the ICT career field in Uganda? And (5) Does the participation of women in the ICT career in Uganda transcend typing and email to the level of computer programmers, engineers, systems analysts, and designers, managers and policy makers?

### **Appendix 1: Interview Guides**

#### **Company Managers semi structured interview guide**

- Do you enforce any gender related policies? For example, the Maternity Protection International Labour Organization (ILO) Convention.<sup>98</sup>
- How often have you advertised positions in this company in the past year? Which positions have been advertised?
- Did you receive as many applications from women graduates as men? And in general?
- Did women apply for high level jobs?
- Did you find that graduates possess the skills that the company requires? What is missing?
- Did you find the women as well qualified as men? Did you find the women to have the same competencies/skills as men?
- How do men react to women being their managers or supervisors?
- Has there been an increase in the number of women engaged in managerial high level skill jobs as defined by the company? Why do you say that?

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<sup>98</sup> C183 - Maternity Protection Convention, 2000 (No. 183)  
Convention concerning the revision of the Maternity Protection Convention (Revised), 1952 (Entry into force: 07 Feb 2002) Adoption: Geneva, 88th ILC session (15 Jun 2000) - Status: Up-to-date instrument (Technical Convention).



- From your own experience, does having a gender balanced team make any difference to productivity or achievement of company goals? Why do you say that?
- Could you describe the current gender balance in this company and in the Ugandan ICT field in general?
- Why do you think the gender balance situation is the way it is?
- Are there any unique challenges do you encounter as you work with women as compared with men? And men compared to women?
- What issues need to be considered when you work with women compared to men? And with men compared to women?
- In your opinion, which future do women have a in this field?
- What do you think will be the next important develops in ICT internationally? And in Uganda?
- Do you carry out any training on gender mainstreaming?

#### **Dean/Head of Department (HOD) /Registrar/ Lecturer Semi structured interview guide**

- This year, did you receive as many applications from women as men? And in general?
- What do you think influences the gender relations/gender proportions among students?
- Have the enforced gender related policies improved the women's participation trends?
- What can be done better to balance out the gender proportions?
- Are there any unique challenges do you encounter as you work with women as compared with men? And men compared to women?
- What issues need to be considered when you work with women compared to men? And with men compared to women?
- Could you describe the current gender balance in this company and in the Ugandan ICT field in general?
- In your opinion, is this a field where women can thrive?
- In your opinion, which future do women have a in this field?
- What do you think will be the next important developments in ICT internationally? And in Uganda?
- Are there any actions aimed at supporting work life balance provided for in your institution policy?
- Do you carry out any training on gender main streaming?
- Have you ever done a gender sensitive review of data on student attainment?

#### **Government officials' semi structured interview guide:**

- What kind of reception have gender policies received?
- Are there any new developments in the gender and ICT policy arena?
- Are they necessary to improve the gender situation?
- What challenges do you face in making and implementing these policies?
- What can be done differently to make policies more effective?
- In your opinion, is this a field where women can thrive?

- In your opinion, which future do women have a in this field?
- What do you think will be the next important developments in ICT internationally?
- And in Uganda?
- Could you describe the current gender balance in this company and in the Ugandan ICT field in general?
- Are there any actions aimed at supporting work life balance provided for in your national policy gender equality in education?
- Do you carry out any training on gender mainstreaming?

## **Appendix 2: Focus Group Discussion Guides**

### **Students focus group discussion guide for women**

- Background information on the participants: age, grades achieved at university, major courses taken, additional training outside the degree, work experience, perhaps mother's highest education, employment status of mother and father, and some indicator of wealth, neighbourhood in which they live, school attended
- When did you first learn about ICTs and ICT course at this University?
- Why did you choose to study computer engineering?
- Do you have a role model in the ICT work sector? Definition of role model: A person to be looked as an example to be imitated
- Is your role model a man or a woman?
- Is your role model Ugandan?
- Is it important for to have a role model who is a woman? Why?
- Do you think ICTs is a field where men fit well? Why?
- Do you think ICTs is a field where women fit well? Why?
- Describe the proportion of males to women in your class?
- Why do you think the proportion of men to women is the way it is?
- What did your mother think of your choice of course?
- What did your father think of your choice of course?
- What do your women friends think of your choice of study program?
- What do your male friends think of your choice of study program?
- Where do you hope to work when you graduate?
- What type of job do you hope to get?
- Do you expect to reach a position as a manager/designer/executive?
- What challenges have you encountered in university?
- What challenges did you encounter during the application process?
- What do you wish could change in class, admissions?
- Do lecturers treat you and the males the same? For example, when assigning leadership roles.
- Should women be awarded extra points in order to assist them to qualify for admission in ICT courses? Why?

### **Students focus group discussion guide for men**

- Background information on the participants: age, grades achieved at university, major courses taken, additional training outside the degree, work experience, perhaps mother,s highest education, employment status of mother and father, and some indicator of wealth, neighbourhood in which they live, school attended
- When did you first learn about ICTs and ICT course at this University?
- Why did you choose to study computer engineering?
- Do you have a role model in the ICT work sector? Definition of role model: A person to be looked as an example to be imitated
- Is your role model women or men?
- Is your role model Ugandan?
- Is having a role model who is a woman important to you? Why?
- Do you think ICTs is a field where males fit well? Why?
- Do you think ICTs is a field where women fit well? Why?
- Describe the proportion of males to women in your class?
- Why do you think the proportion of men to women is the way it is?
- What did your mother think of your choice of course?
- What did your father think of your choice of course?
- What do your women friends think of your choice of study program?
- What do your male friends think of your choice of study program?
- Where do you hope to work when you graduate?
- What type of job do you hope to get?
- Do you expect to reach a position as a manager/designer/executive?
- What challenges have you encountered in university?
- What challenges did you encounter during the application process?
- What do you wish could change in class, admissions?
- Do lecturers treat you and the males the same? For example, when assigning leadership roles.
- Should women be awarded extra points in order to assist them to qualify for admission in ICT courses? (Affirmative action). Why?

#### **Out of work graduates semi structured interview guide for men and women**

- Why are you out of work?
- How long have you been out of work?
- What challenges are you facing in your search?
- Do you find that you have acquired the skills to perform the duties of advertised positions?
- Do you think your gender affected your chances of landing a job in the past?
- What kind of jobs are you looking for?
- What did your parents think of your choice of course?
- What do your friends think of your choice of study program?
- What was your dream job when you were still in university?

- Do you have a role model in the ICT work sector? Definition of role model: A person to be looked as an example to be imitated
- Is your role model a man or a woman?
- Is your role model Ugandan?
- Is having a role model who is a woman important to you? Why?
- Do you think ICTs is a field where men fit well? Why?
- Do you think ICTs is a field where women fit well? Why?

### **Appendix 3: All informants interview questions**

**Question 1:** These will specifically solicit the perceptions of informants on gender

Gender

- A) Woman
- B) Man

**Question 2:** Which kind of family arrangement do you think is better for society?

- A). One where one of the father works to provide for the family and the mother takes care of the house and children.
- B). One where the two parents both work for money and both take care of the house and children.
- C). No difference

**Question 3:** If you were taking a new job and had your choice of a boss (or supervisor), would you prefer to work for a man or a woman?

- A). Man
- B). Woman
- C). No difference

**Question 4:** Do you think, in this country, society generally favours...

- A). Men and women equally
- B). Men over women
- C). Women over men

**Question 5:** In the past five years, do you think that the overall position of women compared to men in this country has...

- A). Improved
- B). Worsened
- C). Remained about the same

**Question 6:** Do you think that women in this country SHOULD have equal job opportunities with men, or not?

- A). Yes, should have equal job opportunities
- B). No, should not have
- C). No difference

**Question 7:** Do you think this country would be governed better or governed worse if more women were in political office?

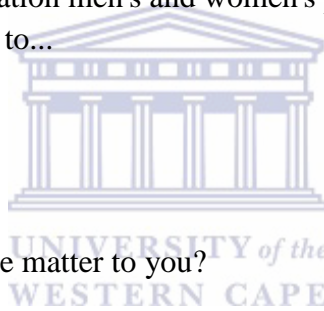
- A). Better
- B). Worse
- C). No difference

**Question 8:** Which job category best describes you?

- A) Manager
- B) Customer care
- C) Computer programming

**Question 9:** Taking into consideration men's and women's personalities, interests and abilities, 'intelligent' applies more to...

- A). Men
- B). Women
- C). No difference



**Question 10:** Does gender balance matter to you?