

# A Comparison of Technical and Vocational Acquired Skills Differences Based on Gender in Tvet Institutions, Uasin Gishu County, Kenya

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## Abstract

Lower participation of women in the labor force and/or concentration of women labor in unskilled or low skilled, low income generating economic activities including part time and casual work has created many questions among the researcher on the kind and quality of technical and vocational skills acquired by woman. The current study compared technical and vocational acquired skills acquired between male and female in Technical Vocational Education and Training (TVET) institutions, Uasin Gishu. From the findings it has been observed that Male students had significantly and highly acquired interpersonal skills, Information Communication Technical (ICT) skills, Critical analysis, ability to use numerical data and management skills than female. Male students had also acquired critical thinking skills two times higher than that of female students. In addition, the study concludes that male students had acquired skills in many areas than female students. On the other hand female students had acquired high significant skills in ability to work in a team, organizational skills and academic qualifications than male. There is need to diversify Vocational and Technical Training and improve access for and retention of girls and women in education and vocational training in such fields as science, mathematics, engineering, environmental sciences, information technology and new technologies, as well as management training.

**Keywords;** Gender, Technical, Vocational, TVET, Skills

## 1. Introduction

In the recent times there has been increased interest in technical and vocational skills development because of precursory evidence that a country with better developed technical and vocational skills among the youth has higher likelihood to reduce poverty and lead to sustainable economic growth. In support, Hartl (2009) argues that for a country to be successful, vocational and skills training have to take encompass the distinctiveness of national and local labor markets and employability. Thus, creating employment for youth and rural poor particularly women will increase the potential of mitigating the risk of further poverty and marginalization (Hartl, 2009).

According to European Union report (2006), to ensure that both men and women have equal access to new technologies, skills, and opportunities being introduced, there need be successful TVET system reforms to address current gender-based inequalities in the economy. This can be better achieved by putting the focus on training for employability, and systematically including a gender perspective. In the same report a careful gender analysis of the labor market was recommended since it would make TVET systems more efficient and relevant to the demands for flexibility in fast-changing economic scenarios.

In many cases TVET system provide training which is in line with traditional gender stereotypes rather than challenging those stereotypes. The selection of course content (e.g. male stereotypical skills), the eligibility requirements, and the timing and location of training can all result in unintended discrimination against women (European Union, 2006). Recently, Women have demonstrated increase high level of participation in the labor market that has not only increased but come to dominate labour force growth in many countries. It is therefore important to address barriers to women's skill development as part of any effort to build a competitive labor force for the future (ILO, 2005).

In developing countries women are encouraged by different politically or educationally driven measures to engage in TVET. However, some of these actions correspond closely to a limited range of traditional labor markets for women, others to affirmative action policies or financial support such as scholarships to encourage female enrollment in sciences related fields. In addition, skill programmes in developing countries reaching more women in different trades are closely connected with regional companies but training is strictly focused on their production lines hence limiting women participants' ambitions for further career development (Foster, 2011). Skills training for women in rural areas are typically offered by Non-Governmental Organizations (NGO) which are limited to community emancipation from poverty or empowering to overcome their social problems.

In Kenya, enrolment in public TVET institutions increased from 40,622 in 1999 to over 66,500 in 2004 with females constituting 49.1 per cent of the total enrolment. However, female students' enrolment has been highest in youth polytechnics and lowest in national polytechnics. Between 1999 and 2004, female enrolment in youth

polytechnics was over 50 per cent of the total number of students enrolled. The highest female enrolment in Technical Training Institutes was 45.7 per cent in 2004. However, female enrolment in national polytechnics has not surpassed 39 per cent between 1999 and 2004. Further, female enrolment in Science Mechanical and Technological related courses in TVET institutions are extremely low (GoK 2007 as cited in Nyerere, 2009). The current TVET curriculum is weak and not flexible enough to meet the technological changes and diverse needs of different clients which include both male and female (Nyerere, 2009). In relation, recent study by Murgor (2013) indicated that that some of the skill provided in TVET like Interpersonal skills, Personal qualities, Ability to use numerical data, Critical analysis, teamwork and Experience are below what is required in the job market.

Based on the above discussion it is critical therefore to make sure that what TVET institutions are offering and training coincides with the needs and opportunities for both male and female in the labor market. By promoting the gender equity in Vocational and Technical skill acquisition and by equally equipping both men and women with portable, employable skills it can reduce rigidities in the labor market overall thus enabling it to be more responsive to new opportunities. Thus, this study intended to improve collection of basic information such as sex disaggregated data on TVET and other forms of training and address gender differences;

## 2. Literature Review

World Bank (2007) Report classifies skills as follows; thinking skills, behavioral skills, vocational skills, mix of specific knowledge and skills and basic levels of behavioral skills such as decision making skills, life situations and vocational skills (World Bank, 2007). According World Bank (2006) there has been lower participation of women in the labor force and/or concentration of women labor in unskilled or low skilled, low income generating economic activities including part time and casual work in developing countries. This creates a significant gap between the quality of employment between men and women. In addition, the proportion of young females who are neither in school nor in labor force is considerably higher than the proportion of that for males (World Bank, 2006)

Previous studies have illustrated that women are avoiding the study of technology education where young girls view it as a male subject (Welty, 1996; Hendley et al, 1996; Bame, Dugger, & deVries, 1993; Bame & Dugger, 1990). Craig (2009) argues that globally male students are more skillful, knowledgeable, and confident in information technology attitudes, use, and skills when compared to female peers.

Hanafi (2007) found that specific employability skills, basic skills and personal quality differed significantly between male and female respondents. Study by Kazilan et al. (2009) showed that employability skills differed as a function of gender. In their reports they highlighted the most lacking skills among women such as innovation and creative skills. In support Borg (2013) indicated that employers view inactive women as being generally good at working as team, managing time and very good in handling customer. Employers however, view them as lacking negotiation skills and financial management skills. Vocational training courses in technical and scientific fields are generally structured on the basis of a curriculum which traditionally has not been attractive to women. In recent years, poverty reduction has moved center-stage to become the primary overriding development objective. In support World Bank report (2001) emphasizes that societies which discriminate by gender pay a high price because their ability to reduce poverty is impaired. The report states that eradicating poverty depends on improving the situation for women and increasing the efficiency of their work.

Nor'ashikin (2002) found that female students agree that technical area provides them opportunities to further their education to a higher level and provides them with promising job opportunities. The skills female students were more likely to rate themselves relatively low on –numeracy, self-confidence, leadership and computer literacy, are all skills that have traditionally been found to be associated with the male gender stereotype and to be higher among men, on average, than among women (Baron-Cohen 2003). They are also, as will be seen, skills that are less likely to be developed on courses in female dominated subjects.

## 3. Methodology

The study adopted a survey research design in carrying out the investigation. The study area was the Uasin Gishu County in Kenya where a National Polytechnic is situated. The population for the study was a total final year student's population of 2072 from the National Polytechnic. Out of population 120 final year students were selected. The Simple random and purposive sampling techniques were employed to select the sample for this study. For the selection of the actual sample systematic and simple random techniques were used.

## 4. Results

Study findings indicated that only one male had been trained in e-commerce. 11 male and 19 female were trained in sale and marketing. However, only 7 female were trained in diploma in medical lab whereas 9 male and 14 female were trained in business management. In relation to teaching, only 4 female were trained while there

were no male counterparts who were trained. Regarding diploma in Finance and Banking a total of 13 individuals were trained and all of them were male. In relation to social work, 15 female were trained while 10 male were trained in Disaster management. Finally, 7 female were trained in diploma in purchasing supplies whereas there were no male individuals who received training in purchasing supplies at diploma level.

**Table 1 Vocational Training Program**

vocational training program	Gender		
	Male	Female	Total
e-commerce	1	0	1
Sales & marketing	11	19	30
Diploma in medical lab	0	7	7
Business Management	9	14	23
Teaching	0	4	4
Diploma in Finance and Banking	13	0	13
social work	0	15	15
Disaster management	10	0	10
diploma in purchasing supplies	0	7	7
Total	44	66	110
Pearson Chi-Square	58.146		
Contingency Coefficient	0.588		
Pearson's R	-0.071		

Table 1 revealed that male had acquired more interpersonal skills (mean = 4.52) than female (mean = 3.98) the differences was statistically proved by  $t = 5.637, p < 0.05$ ). Similarly, teamwork was significantly higher in males (mean = 4.7) than in females (mean= 4.38) as indicated by  $t = 2.796, p < 0.05$ ). In relation to teamwork, male had acquired more team work skills (mean=4.7) than female (4.38) the differences was shown by  $t = 2.796, p < 0.05$ ). Also, personal qualities was significantly higher in males (mean=4.2) than female (4.06) as proved by  $t = 2.139, p < 0.05$ ).

In addition, male had acquired more ICT skills (mean=4.05) than female (mean=3.48) the differences was proved by  $t = 3.986, p < 0.05$ ). Similarly, management skills was significantly higher in males (mean=4.34) than in females (mean=3.94) as revealed by  $t = 5.804, p < 0.05$ ). The findings confirm with the Stockholm European Council report (2001) that Access of women to the technical professions is still very restricted. While equality between men and women in access to vocational training is preserved in community norms and culture, the fact remains that scientific and technical careers are still a male preserve. Further, cognate to the ability to use numerical data, male had significant higher ability to use numerical data (mean=4.27) than female (mean=3.5) as confirmed by  $t = 3.717, p < 0.05$ ). However, the ability to work in a team was higher in female (mean=4.48) than male (mean=4.43) as revealed by  $t = -0.542, p < 0.05$

Findings on thinking skills revealed that male had acquired more thinking skills (mean=4.73) than female (mean=4.62) as affirmed by  $t = 0.916, p < 0.05$ ). However, more female had acquired creative and innovative skills (mean=4.79) than male (4.52) the difference was supported by  $t = -3.018, p < 0.05$ ). In relation to spoken communication, male had acquired more spoken communication skills (mean=4.55) than female (mean=4.47) as affirmed by  $t = 0.774, p < 0.05$ ). Similarly, male had acquired problem solving skills (mean=4.23) than female (mean=4.11) as supported by  $t = 1.731, p < 0.05$ ).

Findings on logical thinking skills revealed that male had acquired more logical thinking skills (mean=4.02) than female (mean=3.71) as shown by  $t = 1.948, p < 0.05$ ). Similarly, findings on critical analysis revealed that male had acquired higher critical analysis (mean=4.05) than female (mean=2.83) as revealed by  $t = 7.315, p < 0.05$ ). Some of the subject that requires logical thinking are Mathematics, Engineering and Technology disciplines which in some communities are regarded as “men course”. In the West African sub-region, female participation in these traditionally male-dominated disciplines is less than 28%

It was also indicated that commercial awareness among male was higher (mean=4.55) than female (mean=3.92) as illustrated by  $t = 4.916, p < 0.05$ ). Similarly the ability to learn was higher among male (mean=4.98) than female (mean=4.59) basing on  $t = 3.709, p < 0.05$ ). It was indicated that female had acquired high skill in relation to qualifications (mean=4.62) than male (mean=4.3) as affirmed by  $t = -2.953, p < 0.05$ ). However, skills on the capacity to work autonomously was higher among male (mean=4.36) than female (mean=4.27) as shown by  $t = 0.775, p < 0.05$ ).

Finally, male were more experienced (mean=4.41) than female (mean=4.2) the difference was statistically proved by  $t = 1.105, p < 0.05$ ). Also, male had acquired more organization skills (mean=4.73) than female

(mean=4.32) as supported by  $t=3.119$ ,  $p < 0.05$ ).

**Table 2 Comparison of Vocational and Technical Between Female and Male**

	Gender	N	Mean	Std. Deviation	T	Df	P																																																																																																																																																																																																								
Interpersonal skills	Male	44	4.52	0.549	5.637	108	0.000																																																																																																																																																																																																								
	Female	66	3.98	0.447				Team work	Male	44	4.7	0.509	2.796	108	0.006	Female	66	4.38	0.651	ICT skills	Male	44	4.05	0.645	3.986	108	0.000	Female	66	3.48	0.769	Management skills	Male	44	4.34	0.479	5.804	108	0.000	Female	66	3.94	0.24	Thinking skills	Male	44	4.73	0.451	0.916	108	0.362	Female	66	4.62	0.674	Creativity and innovative skills	Male	44	4.52	0.505	-3.018	108	0.003	Female	66	4.79	0.412	Ability to use numerical data	Male	44	4.27	0.758	3.717	108	0.000	Female	66	3.5	1.231	Ability to work in a team	Male	44	4.43	0.501	-0.542	108	0.589	Female	66	4.48	0.504	Spoken communication	Male	44	4.55	0.504	0.774	108	0.441	Female	66	4.47	0.503	Problem solving skills	Male	44	4.23	0.424	1.731	108	0.086	Female	66	4.11	0.31	Logical thinking	Male	44	4.02	0.628	1.948	108	0.054	Female	66	3.71	0.924	Critical analysis	Male	44	4.05	0.645	7.315	101	0.000	Female	59	2.83	0.95	Commercial awareness	Male	44	4.55	0.504	4.916	108	0.000	Female	66	3.92	0.73	Ability to learn	Male	44	4.98	0.151	3.709	108	0.000	Female	66	4.59	0.679	Qualifications	Male	44	4.3	0.668	-2.953	108	0.004	Female	66	4.62	0.489	Capacity to work autonomously	Male	44	4.36	0.78	0.775	108	0.44	Female	66	4.27	0.449	Experience	Male	44	4.41	0.497	1.105	108	0.272	Female	66	4.2	1.205	Organizational skills	Male	44	4.33	0.451	3.119	108	0.002
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Finding in table 4.2 illustrated that the skills developed by male on course was higher (mean=3.82) than for female (mean=3.14) as proved by  $t=1.979$ ,  $p < 0.05$ ) this is because male had acquired appropriate skills and personal attributes required. Also, male experience of being a student has made them more employable (mean=3.57) than female (mean=3.24) as revealed by  $t=1.125$ ,  $p < 0.05$ ). Respondents also affirmed that the subject they did is an advantage in seeking employment mostly for male (mean=4) than female (mean=3.68) the difference was supported by  $t=1.524$ ,  $p < 0.05$ ) and the institution that they were in is of advantage in looking for employment is of more advantage to male (mean=3.61) than female (mean=3.59) as shown by  $t=0.072$ ,  $p < 0.05$ ). Further, the experience of being a student has enhanced social and intellectual being more among male (mean=4.8) than female (mean=4.09) as proved by  $t=4.139$ ,  $p < 0.05$ ). It was revealed that the respondents have the skills employers are looking for when recruiting for the kind of jobs they want especially for female (mean=4.47) than male (mean=4.4) the difference was statistically proved by  $t= -0.389$ ,  $p < 0.05$ ). The subject the respondents have studied is an advantage in looking for employment by broad subject group especially for male (mean=4.27) than female (mean=4.06) as revealed by  $t=1.456$ ,  $p < 0.05$ ) hence the respondents have the skills employers are likely to be looking for when recruiting for the kind of jobs they want to apply mostly for male (mean=4.3) than female (mean=4.2) as supported by  $t=0.705$ ,  $p < 0.05$ ). Finally, the university the respondents attended is an advantage in looking for employment mostly for male (mean=4.11) than female (mean=3.58) as affirmed by  $t=1.844$ ,  $p < 0.05$ ).

**Table 3 Perception of Female and Male on TVET Institution**

	Gender	N	Mean	Std. Deviation	T	Df	P																																																																																												
Skills developed on course have made me more employable	Male	44	3.82	1.498	1.979	108	0.05																																																																																												
	Female	66	3.14	1.929				Experience of being a student has made me more employable	Male	44	3.57	1.516	1.125	108	0.263	Female	66	3.24	1.468	Subject i did is advantage in looking for employment	Male	44	4	1.161	1.524	108	0.13	Female	66	3.68	1.01	Institution i was is advantage in looking for employment	Male	44	3.61	1.646	0.072	108	0.943	Female	66	3.59	1.598	Experience of being a student has enhanced my social and intellectual	Male	44	4.8	0.408	4.139	108	0	Female	66	4.09	1.077	I have the skills employers are looking for when recruiting for the kind of jobs i want	Male	44	4.41	0.497	-0.389	108	0.698	Female	66	4.47	0.948	The subject i have studied is an advantage in looking for employment by broad subject group	Male	44	4.27	0.694	1.456	108	0.148	Female	66	4.06	0.782	Have the skills employers are likely to be looking for when recruiting for the kind of jobs for which i want to apply	Male	44	4.3	0.668	0.705	108	0.482	Female	66	4.2	0.749	The university i attended is an advantage in looking for employment	Male	44	4.11	1.28	1.844	108	0.068
Experience of being a student has made me more employable	Male	44	3.57	1.516	1.125	108	0.263																																																																																												
	Female	66	3.24	1.468				Subject i did is advantage in looking for employment	Male	44	4	1.161	1.524	108	0.13	Female	66	3.68	1.01	Institution i was is advantage in looking for employment	Male	44	3.61	1.646	0.072	108	0.943	Female	66	3.59	1.598	Experience of being a student has enhanced my social and intellectual	Male	44	4.8	0.408	4.139	108	0	Female	66	4.09	1.077	I have the skills employers are looking for when recruiting for the kind of jobs i want	Male	44	4.41	0.497	-0.389	108	0.698	Female	66	4.47	0.948	The subject i have studied is an advantage in looking for employment by broad subject group	Male	44	4.27	0.694	1.456	108	0.148	Female	66	4.06	0.782	Have the skills employers are likely to be looking for when recruiting for the kind of jobs for which i want to apply	Male	44	4.3	0.668	0.705	108	0.482	Female	66	4.2	0.749	The university i attended is an advantage in looking for employment	Male	44	4.11	1.28	1.844	108	0.068	Female	66	3.58	1.627								
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## 5. Conclusion

Based on the study findings, Male students had acquired significantly high interpersonal skills, Team work, Personal qualities, ICT skills, Management skills, Ability to use numerical data, Critical analysis, Commercial awareness, Ability to learn, Capacity to work autonomously, Experience Self confidence than their female counterpart. Nevertheless they are only five skills (Interpersonal skills, ICT skills, Critical analysis, Ability to use numerical data, Management skills) that indicated huge differences between the two parts especially critical thinking which was two times higher in female than that of female students. In addition, the study concludes that male students had acquired skills in many areas than female students. On other had female had acquired a high significant ability to work in a team, organizational skills and qualifications than men.

## 6. Recommendation

The study found that women have low skills in scientific profile, which is against today's high demand for scientific profiles which combine technical competence with skills which are traditionally neglected in training courses: flexibility, adaptability, self-confidence, social skills, communication skills, creativity, language skills, ability to retool rapidly, teamwork skills, and the ability to address and resolve unforeseen problems. Thus, there is high need to improve women's job prospects and to facilitate their access to traditionally male professions. In addition, the curriculum developers in TVET need to inspire women by providing incentives that will motivate them to take up engineering and technological courses. It is also important to ensure that women acquisition of technical and vocational skills will lead to gainful employment. Hence, it is important that training is geared towards the needs of the labor market. One way of doing this is to create a mechanism for identifying and predicting the skills gaps and shortages among women at the workplace by following the dynamics of the labor market. In order to engineer a TVET delivery system that is flexible and responsive to the workforce needs of the employment sector for both men and women. Further there is need to the establish labor market observatory that is gender sensitive.

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