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Full Length Research Paper

Gender-related challenges faced by students in learning technical courses in Machakos technical training institute, Machakos County-Kenya

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This study aimed at exploring gender-related challenges faced by students in learning technical courses in Machakos Technical Training Institute (MTTI). The objectives of the study were to identify the courses male and female students were taking in MTTI, investigate gender-related challenges students faced in learning technical courses in MTTI and suggest ways of addressing these challenges. The study was guided by descriptive research. Nine departments in the institution were grouped into three clusters for the purpose of the study. One female, two male administrators and four heads of the departments were included as informants. Systematic sampling was used to select a sample of teachers while simple random sampling was used to select a students' sample. In total, 18 teachers, 207 male and 190 female students participated in the study. Data were collected using interview schedules for the administrators, heads of departments and teachers while a questionnaire was used to obtain data from students. Quantitative data was analyzed using the Statistical Package for Social Sciences while qualitative data was presented through descriptive methodology. The study established that male and female students faced challenges from teachers and classmates in learning various courses. In particular, male students dominated courses hitherto considered masculine such as Building and Civil Engineering (BCE), Electrical and Electronics Engineering (EEE) and Computing and Applied Sciences (CAS) that were considered unsuitable for females. Female students in turn dominated mainly in Hospitality Management and Clothing Technology traditionally considered feminine. The study recommends the development of gender responsive policies to empower students to participate equally in learning technical courses and a positive transformation in teachers and students' attitudes and beliefs towards all courses with competence.

Keywords: Technical courses, gender-related challenges, gender responsive policies

INTRODUCTION

Background to the study

Education and training contribute significantly to economic growth and productivity, better employment opportunities and expansion of income generating opportunities (Republic of Kenya, 2005). For these reasons, countries should aim at ensuring that male and female students have access to quality education and training at all levels. This enhances equity and equality for all (UNESCO, 2008). To realize quality education and training for all, technical education should play a vital role (Republic of Kenya, 1988, 1999, 2008; Rudo, 2008).

Technical education is a process of teaching, training and learning to improve or acquire knowledge and develop technical skills, attitudes and moral values relating to occupation in various sectors of economic growth and social life (Rudo, 2008). Technical education plays an important role in equipping male and female students with quality practical skills, knowledge and

positive attitudes to become self-employed or secure employment opportunities in formal and informal sectors hence the economy of a country is improved and this has been clearly outlined in various government policies including education and Kenya Vision 2030 (Eshiwani, 1993; Republic of Kenya, 1988, 1999, 2005, 2008).

Many countries are committed to providing quality technical education to male and female students. Developed countries such as America, France and Britain have become industrialized, resourceful and prosperous due to their progress in technical education (World Bank, 2004). The Kenyan government recognizes the value of technical education in development. Its main aim in technical education and training policies is to prepare competent male and female students who should benefit from the application of the acquired skills and knowledge to play a productive role as workers and take part in national development. Technical education under Kenya Vision 2030 also aims at enhancing and improving their standards of living (Republic of Kenya, 2008). Quality technical education programmes greatly benefit the society by offering equal opportunities for male and female students (UNESCO, 2008). Consequently, societies should provide equal opportunities and participation for both male and female students in learning technical courses. In addition, technical institutions should ensure equal treatment that is free from gender bias in learning technical courses (Klein, 2007).

In spite of the fact that technical education plays a paramount role in preparing students to acquire quality technical skills and knowledge to contribute to national development, studies indicate that students face gender related challenges in learning technical courses (UNESCO, 2008). According to Chaika (1999) and Leonard (2005) students pursuing technical courses considered “inappropriate” for them face gender related challenges from their families, teachers and classmates. However, although both male and female students face challenges in learning technical courses, female students face more challenges in learning courses such as engineering and technology.

Gender related challenges in learning technical courses are a universal phenomenon (UNESCO, 2008). For instance, Richard and Susan (2009) observe that in the U.S. female students learning engineering and technology courses receive discouragement and pejorative remarks from their teachers such as ‘Females do not become engineers, why should you waste your time?’ Richard and Susan, (2009) further criticize some teachers’ inability to provide equal opportunities and participation to both male and female students in learning engineering and technology courses and argue that female students develop “learned helplessness” as a result of the discouragement from the teachers. Moreover, females feel insecure and are so ego-defensive that they become self-handicapping and have anxiety prior to beginning a task, and this may lead to low achievement.

Peterson (2007) states that in Ghana, some teachers do not provide an environment in which female students can participate equally with male students in learning engineering courses. In addition, male students often receive more attention and praise from teachers in engineering and technology classes. In contrast, female students often receive less attention which is usually in form of negative remarks. Kombo (2004) argues that in Kenya, most often teachers treat male students in engineering classes with higher considerations and expectations while female students are treated with lower expectations and are intimidated. Abagi and Sifuna (2006) take note of the challenges and further state that engineering fields such as vehicle maintenance and building and construction have been perceived as male domains. As a result, female students pursuing engineering courses are viewed as incapable. These stereotypes can hinder technological development.

Kelly (2000) argues that male students pose challenges to female students in learning engineering and technology courses. They consciously or unconsciously send messages to female students that they are unwelcome in class discussions (Kelly, 2000). This argument is supported by Gordon (2006) who adds that female students pursuing engineering and technology courses develop low self-esteem and low confidence due to the fact that they are perceived as incompetent. Consequently, they refrain from asking or answering questions for fear of being put down by their teachers and male students who dominate classes.

According to Klein (2007) male students dominate class equipment and machines in engineering and technology classes. Klein (2007) further observes that female students fear handling equipment and machines during class projects due to the fear instilled in them by their teachers and classmates that they are incapable. The challenges faced by female students from teachers and classmates could probably result in lowered performance. On the same aspects, Marshall (1997) argues that male students taking courses such as home economics, clothing technology and secretarial courses face similar challenges. According to Marshall (1997) male students are teased, ridiculed and viewed as lesser than “all men” by female classmates and peers. Furthermore, they are viewed as adopting a female gender role and are described as “sissy” or pejorative terms such as “girlie man” are used.

Sheila (2001) observes that gender related challenges faced by students in learning technical courses could inhibit them from achieving their fullest potential. According to Sheila (2001), engineering and technology are prerequisite for economic and industrial growth and development. Consequently, the challenges could limit

female students from acquiring quality technical skills and knowledge required in engineering and technology fields. Sheila (2001) further argues that the challenges create gender disparities in productivity and employment opportunities. The realization that female students face more challenges in learning technical courses prompted this study to establish gender-related challenges faced by students in learning technical courses.

Statement of the problem

The government of Kenya recognizes technical education as a major factor in contributing to economic growth and development. However, despite the fact that the government provides technical education to students to take part in national development, male and female students face different gender-related challenges in learning technical courses. Several studies indicate that female students face more challenges in learning engineering and technology courses. The challenges could impact negatively on male and female students and perpetuate with gender disparities in productivity and employment opportunities. Thus, the study investigated the challenges encountered by students in learning technical courses in Machakos Technical Training Institute from a gender perspective.

Objectives of the study

The aim of this study was to investigate on gender-related challenges encountered by students in learning technical courses in Machakos Technical Training Institute, Machakos County. The objectives of the study were to:

- Identify the courses male and female students are taking in MTTI.
- Investigate gender-related challenges students face in learning technical courses in MTTI.
- Identify strategies for addressing gender-related challenges students face in learning technical courses.

Theoretical framework for the study

The theoretical framework of the study was drawn from gender schema theory by Sandra Bem (1981). Bem (1981) defines gender schema as a process through which individuals learn about what it means to be males and females from the culture in which they live. According to Bem (1981) males and females adjust their behaviour to fit in with the gender norms and expectations of their cultures. Bem further argues that males and females learn how their cultures or societies define the gender roles and then internalize this knowledge as a gender schema or unchallenged core belief.

Bem (1981) points out that socializing agencies make it clear to the learners what is expected of them. The family is the primary agent thus it shapes the learners' beliefs, basic attitudes, sex role identity and self image. This identity is further shaped and reinforced by the school system "an environment that formally transmits society's basic cultures to the learners and provides them with values and norms beyond their families". According to Bem, learners develop gender schema that organizes an individual's gender related knowledge, beliefs, attitudes and preferences. Consequently, they learn to categorize themselves by gender very early in life. They learn how to perform gendered identities as masculine and feminine.

Bem (1981) believes that children incorporate their own self-concepts into their gender and assume the traits and behaviour deemed suitable for their gender. The society's beliefs about the traits of males and females influence the processing of social information and self-esteem. According to Bem, individuals raised in a society that emphasizes differences based on gender will readily process and organize information about themselves according to cultural definitions of maleness and femaleness. Males and females feel positively about themselves and their own gender when they degrade the other gender. This explains why gender stereotypes are so resistant to change. This is an important consideration in this study as female and male students pursue technical education courses.

Bem (1981) argues that as a result of the social construction of gender, learners develop gender biased perspectives of the other learners. They view the world through what Bem calls the "lenses of gender". Once these gender lenses have been internalized, they predispose the learner to construct an identity based on gender. Reinforcing gender related beliefs and attitudes can negatively affect the learner's education. The family and teachers influence the future of their learners by giving them different opportunities in education based on social construction. The societal expectations and informal influences contribute to some of the reasons behind the classroom gender differences between male and female. Bem believes that the encouragement students receive from the family and teachers shape the students' ambitions more directly and with greater impact than any other sources.

The principles of the gender schema theory imply that the family and the school are most important in reinforcing gender biasness in learning technical courses. This is because the family may disapprove the technical courses the child is pursuing simply because the society considers the course inappropriate. Yet, this is based on already constructed or pre-conceived gender stereotype other than capability. As a result these and other learners do not receive encouragement from their families. This poses a challenge to male and female students in learning technical courses.

Teachers most often have gender bias perceptions of male and female students learning technical courses. They ignore, intimidate, belittle, mistreat or make negative remarks about male and female students pursuing technical courses perceived "inappropriate" for

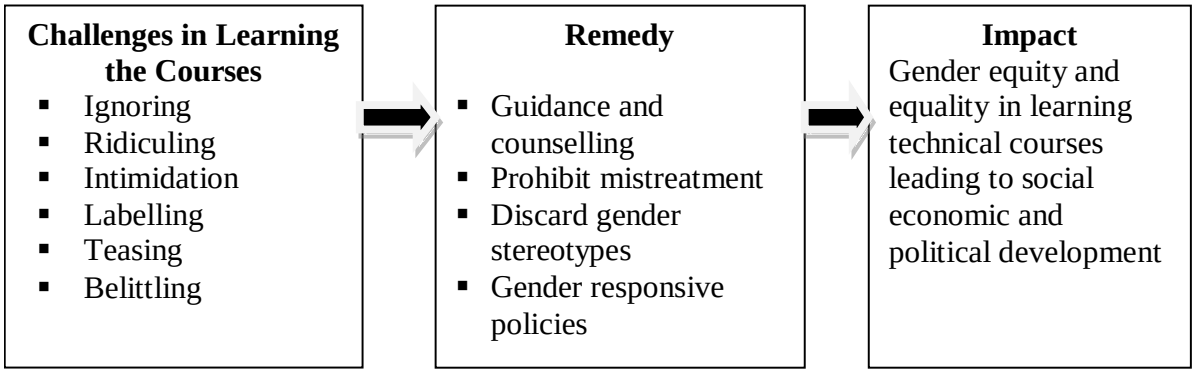

Figure 1: Gender-related challenges in learning technical courses

them. This is also a challenge to the learners. Male and female students view their families and teachers as their mentors and role models and will interpret in different ways the negative reactions they receive from them. In addition, male and female students taking technical courses viewed as "inappropriate" tend to be mistreated by their peers and classmates. This may also have a negative impact. Lack of encouragement and support from families, teachers and peers lead to low expectations and low confidence and thus low achievement of male and female students pursuing technical courses.

Conceptual framework

As shown in figure 1 the conceptual framework of this study is based on the preposition that various gender-related challenges affect learning of technical courses. Some of the challenges established facing male and female students in learning the courses at MTTI were ridiculing, intimidation, labelling, teasing and belittling. These challenges impact negatively on participation, performance and self-esteem. Strategies that can enhance gender equity and equality in learning technical courses such as guidance and counselling and gender responsive policies should be put in place. This in turn will eliminate gender stereotypes and disparities in learning including technical courses leading to enhanced social, economic and political development.

RESEARCH METHODOLOGY

Research design

The research design adapted for this study was descriptive research. Consequently, a questionnaire and interview schedules were utilised to collect information on gender related challenges faced by students in learning technical courses. Data collected was then analyzed, summarized and interpreted to provide the designed descriptive information.

The nine departments in the institution were grouped into three clusters for the purpose of the study. One female, two male administrators and four heads of departments were included as informants. A sample was selected from the three clusters to ensure a proportional representation. Systematic sampling was used to select a sample of teachers while simple random sampling was used to select a sample of students. In total, 18 teachers, 207 male and 190 female students participated in the study. Two study instruments were utilised: a questionnaire for male and female students and two sets of interview schedules for administrators, heads of departments and teachers. The questionnaire was convenient since it was distributed and left with the students to fill during their free time. This ensured that students had adequate time to provide well thought responses. Similarly, the administrators, heads of departments and teachers were interviewed separately as the interview required probing to obtain additional information from the respondents in line with the research objectives.

During the data collection period, preliminary visits to MTTI were made to explain the significance of the study to the principal of the institution. An appointment was made on when to meet the students to issue the questionnaire and make appointments for the interviews. On the set date, the questionnaire was distributed and left with the respondents for a period of one week. An appointment was also made to collect the filled questionnaire. Appointments were also made with the administrators, heads of departments and the teachers to conduct the interviews using the interview schedules. Several visits were conducted to avoid interference with the regular programme and this was found appropriate with the respondents and encouraged their participation in the study.

RESULTS AND DISCUSSION

Summary of research findings

As shown in the figure 2, the study established that more male students than female students were taking male-related courses such as: building and civil engineering; electrical and electronics engineering; and computing and

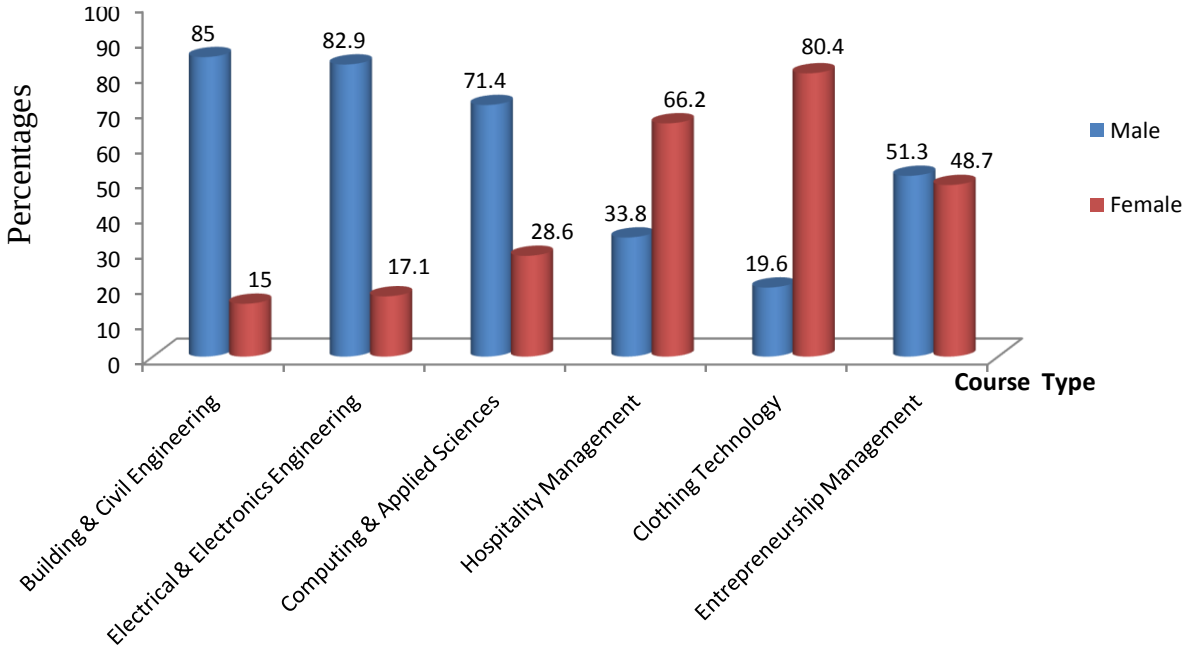

Figure 2: Distribution of courses by gender

Table 1: Challenges faced by female students from teachers

Challenges	Respondents by Gender	Courses							
		BCE		EEE		CAS		TOTAL	
		Responses		Responses		Responses		Responses	
		Male	Female	Male	Female	Male	Female	Male %	Female %
Ignoring	Male	7	18	8	15	4	13	19 (20.4)	46 (49.5)
	Female	1	3	1	4	2	6	4 (17.4)	13 (56.5)
Ridiculing	Male	9	16	10	17	4	13	23 (24.7)	46 (49.5)
	Female	1	3	1	4	2	5	4 (17.4)	12 (52.2)
Intimidation	Male	6	9	8	12	7	10	21 (22.6)	31 (33.3)
	Female	1	2	1	3	3	4	5 (21.7)	9 (39.1)
Labelling	Male	3	14	6	13	10	15	19 (20.4)	42 (45.2)
	Female	2	4	1	3	2	6	5 (21.7)	13 (56.5)

applied sciences. The study also established that more female students than male students were taking courses associated with females such as home management and clothing technology.

The male dominance in courses can be attributed to certain factors including challenges in learning the courses. The study further established that female students encountered various challenges in learning BCE, EEE and CAS courses. As table 1 show, the following are the specific challenges being faced by female students from teachers identified by male and female students: ignoring, ridiculing, intimidation and labelling of female students.

Ignoring of the female students

Out of 23 female students 13 (56.5%) reported that teachers often ignored and paid less attention to female students compared to male students during class discussions and activities . From the findings, female students received less feedback and their comments, opinions and ideas were given less credit. On the contrary, male students were often encouraged, probed and provoked to develop their thoughts by giving them more extended and specific feedback on their ideas. In addition, six of the female students argued that teachers received more positively questions from male students and tended to ask male students questions that call for “higher order” critical thinking whereas female students were asked “lower order” facts.

Ridiculing of the female students

Female ridicule by teachers was also noted by 12

Table 2: Challenges faced by female students from classmates

Challenges	Respondents by Gender	Courses							
		BCE		EEE		CAS		TOTAL	
		Responses		Responses		Responses		Responses	
		Male	Female	Male	Female	Male	Female	Male %	Female %
Male dominance	Male	20	7	15	5	12	3	47 (40.5)	15 (16.1)
	Female	4	0	4	1	6	2	14 (60.9)	3 (13.1)
Intimidation	Male	4	11	5	15	2	6	11 (11.8)	32 (27.6)
	Female	0	4	1	5	1	3	2 (8.6)	12 (52.2)
Ridiculing	Male	4	8	7	14	3	13	14 (15)	35 (30.2)
	Female	0	3	2	4	0	6	2 (8.6)	13 (56.5)
Belittling	Male	9	17	3	15	2	10	14 (15)	42 (36.2)
	Female	1	3	2	3	1	6	4 (17.4)	12 (52.2)
Labelling	Male	5	12	8	14	8	10	21 (22.6)	36 (31)
	Female	1	3	0	3	3	4	4 (17.4)	10 (43.5)

(52.2%) of the female students. It follows that some teachers had higher expectations of male students and thus encouraged them, leaving the females discouraged and this may have made the females feel ridiculed, out of place and left out. Eight of the female students further stated that some teachers looked down upon them because they were females thus they felt less confident and unequal to male students.

Intimidation of the female students

Female intimidation by teachers was also reported by 9 (39.1%) of the female students. The students argued that some teachers often used harsh words and negative remarks on their performance and were made aware that they could not compare with male students. Thirteen (56.5%) of the female students stated that teachers often labelled them. In particular, one female student reported that a teacher singled her out and made negative criticisms about her “poor performance”, making her feel belittled and less competent.

Additionally, 46 (49.5%) out of 116 of the male students noted that teachers paid more attention to male students compared to female students. Similarly, teachers praised male students more often during class discussions and class activities compared to female students. Twenty nine of the male students further reported that teachers encouraged and directed questions mostly to male students. It was also reported by 46 (39.7%) of the male students that teachers tended to ridicule female students more often than male students. Similarly, 32 (27.13%) of the male students noted that teachers intimidated female students more often compared to male students. In addition, 44 (37.9%) of the male students stated labelling of female students by teachers.

As shown in table 2 the following are the specific challenges encountered by female students from male classmates as was reported by male and female students. Male dominance, intimidation, ridiculing, belittling and labelling.

Male dominance

Three out of nine teachers and a majority of the female students 14 (60.9%) reported male dominance during class discussions and class activities. Consequently, female students were ignored and perceived as intruders by male classmates. In particular, one female student pursuing electronics engineering course reported that male classmates usually did not permit her to contribute to a class discussion or was not consulted to give an opinion. She was simply ignored. From the findings two teachers also reported that some female students had the belief that they could not compete with male classmates during computer lessons hence felt inadequate in handling machines. One female student argued that computer usage was typically dominated by male classmates. Three students further stated that male students tended to sit where they could take control of the mouse and explained as the female students observed.

Intimidation of the female students

From the findings, three teachers and 12 (52.2%) of the female students stated that female students were often intimidated by male classmates. For instance, two female students who were pursuing civil engineering course reported that male classmates made negative remarks such as the course they were pursuing was for “muscled people” thus they felt discouraged and out of place. One female student pursuing electrical engineering course wanted to drop the course because male students constantly nit-picked her during class activities hence felt unwelcome. Two teachers also argued that negative remarks directed to female students by male classmates lower their self-esteem thus participate less frequently in class activities.

Ridiculing of the female students

Two teachers and 13 (56.5%) of the female students stated that male students often ridiculed female

classmates. For example, one teacher who was teaching building and construction course noted that females were discriminated because the course was perceived as a male course. Additionally, one female student who was taking electrical engineering course reported that male classmates found faulty in almost every task she performed and made her feel demoralized and uncomfortable hence she usually avoided taking part in class projects.

Belittling of the female students

Two teachers and 12 (52.2%) of the female students further stated that male students usually belittled female classmates. One teacher teaching electronics engineering course noted that male students made crude comments to female classmates to put them down. As a result some female students tended to feel "helpless" especially when they were assigned tasks with male classmates. Additionally, two female students who were pursuing electrical and building and construction courses reported that male classmates often made them aware that they could not compare with them. Cases of labelling of female students by male students were also reported by 10 (43.5%) of the female students. One teacher also noted that male students used nasty names and unkind words to hurt female students simply because they were perceived as pursuing "male courses".

From the findings, 47 (40.5%) of the male students similarly reported that male students usually ignored female students and dominated class activities and discussions. Cases of intimidation of female students by male classmates were also reported by 32 (27.6%) of the male students. Ridiculing of female students by male classmates was also stated by 35 (30.2%) of the male students. According to 42 (36.2%) of the male students, female students were often belittled by male classmates. Similarly, 36 (31%) of the male students reported that female students were often labelled by male classmates. The study also revealed that male students faced similar challenges in learning HM and CT from teachers and female classmates.

The respondents argued that gender stereotypes of what courses are appropriate for each gender are attributed to the challenges faced by students in learning the courses. They stated that negative attitudes towards students pursuing courses considered 'inappropriate' for them impact negatively on participation, self-esteem and performance of the learners. The study findings concur with the gender schema theory by Bem (1981) which argues that the social construction of gender defines what males and females should learn. According to Bem (1981) learners develop gender biased perspective of the other learners and tend to degrade learners who deviate from the set norms. This, according to the theory, affects the "learners" participation hence performance in class. Elimination of these misconceptions would empower both male and female students and hence enhance their participation and performance in learning the courses.

CONCLUSIONS

Based on the findings, it is evident that the students faced gender-related challenges from teachers and classmates in studying courses in MTTI. However, female students faced challenges in learning BCE, EEE and CAS courses while male students faced challenges in learning HM and CT courses. Some of the challenges reported were ridiculing, labelling, teasing, intimidation and belittling. The challenges were attributed to gender stereotyped misconceptions of courses that are perceived to be more "appropriate" for a particular gender. Since BCE, EEE and CAS courses contribute significantly to economic growth and development females are discriminated and the challenges create gender disparities in productivity and employment opportunities. It is also evident that male students' dominance in learning the courses remains a major issue hence there is clearly need to bridge this gap by addressing the challenges from gender perspective.

Recommendations

On the basis of the study conclusions the following recommendations are suggested for effective participation of male and female students to enhance performance in learning the courses:

- The Ministry of Education and the stakeholders should develop gender-related policies to empower and ensure that male and female students participate equally in learning technical courses.
- The Ministry of Education should put in place policies to ensure societal change in supporting and encouraging female students to participate equally with male students in learning engineering and technology courses. This will empower female students who are often marginalized in learning these courses.
- The government and other stakeholders should develop policies to discard gender stereotypes of courses that are perceived ''appropriate'' for each gender. This will ensure that the society perceives both male and female students equally in learning technical courses.
- The Ministry of Education should educate teachers and students to change their negative attitudes and beliefs towards students pursuing courses that are considered" inappropriate" for them and instead, perceive the students as competent.
- The Ministry of Education should develop policies to guide and counsel both male and female students to pursue courses of their choice without fear.
- The Ministry of Education and the other stakeholders should set policies to enable male and female students to work together and enhance their self-esteem to participate equally in learning technical courses regardless of gender

Suggestions for further research

It is also recommended that since this study focused on Machakos Technical Training Institute, it is recommended that a similar study be conducted in other institutions offering technical courses in Kenya for comparison.

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