Major Factors Affecting the Pre-service Female College Trainees' Field of Study Selection in Oromia Regional State

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Abstract: This study was conducted to investigate the major factors affecting female TEC and TVET trainees' field of study or department selection. For this purpose, 295 female students from 3 TECs and 127 female students from 3 TVETs, totally 422 female trainees were randomly selected and used as source of information. Besides, department heads and gender focal persons of the sample colleges were included as source of supplementary information. All the necessary information was collected using locally developed and pilot tested questionnaire and interview. The result of the study revealed that female trainees are threatened by two major factors, i.e. internal and external factors, based on their origins. Thus, it was found that the internal factors are factors that emanate from the 'self' such as feeling of inability, subject anxiety, self undermining, fear of practice and extra work. On the other hand, external factors are factors such as peer pressure, inability to get orientation, absence of role models, failure of teachers to encourage females, traditionally beliefs and the like. Generally, the study concludes that the combination of the two factors is threatening the female trainees on their field of study selection.

Background

Education plays a significant role to enhance social changes, economic sustainability and better life style. This is because economic development highly depends upon skilled human power and this in turn is dependent up on the type and level of education. Nowadays, it is generally agreed that higher education is one of the key elements for socio economic development of a country, for poverty reduction and good governance (MoE, 1999; Habtamu, 2003). Accordingly, the Ethiopian government seems to be cognizant of this fact and is investing more on higher education these days.

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However, inequality of opportunities between various social groups for higher education is and has been a serious problem in Ethiopia. The number of admissions and graduates has not been proportional to the size of population when we compared males with females, various ethnic groups, urban and rural residents. Evidences indicate that even in developed countries, women do not equally enroll in some areas of study such as physics and engineering to that of men (Dowd, 1999).

Though not detailed enough, there are adequate policy statements to support these disadvantaged social groups, females, in terms of education. Article 35:3 of the constitution of FDRE of 1995 states that:

> The inequality and discrimination suffered by women in Ethiopia taken into account, women are entitled to affirmative actions. The purpose of such actions/ measures shall be to provide special attention to women so as to enable them complete and participate on the basis of equality in political, social and economic life as well as in public and private institutions.

Similarly, stemming from the policy statement of FDRE 1995, article 35:3, the Oromia Regional State Government (2004) indicated that female enrolment at all levels of education to be enhanced and efforts to be made to narrow the gender gaps in opportunities to education. The policy further states that access to education and training programs as to be enhanced on quantitative basis to bring about the basic solutions, to strengthening their competence focusing on the application of quota systems, and various measure of affirmative actions.

As a mechanism of implementing the stated proclamation and alleviating the problem of female students' access to higher education, affirmative action strategy in quota system has been in practice in the new education and trading policy of Ethiopia. Consistent with this, Getachew(2007) pointed out that since education is an investment in development, both males and female should profit equally from the process of development by improving

and widening their access to education. In line with this, Fentaw (2001) stressed that the strategy is quite important and helpful in increasing female students' participation in higher learning institutions.

However, as a weak side of these affirmative actions, Fentaw added that the affirmative action strategy has been limited to admitting more female students without a concomitant effort aimed at helping them to academically cope with higher education demands at the freshman year. Thus, dropout rates of quota students were very high.

Current practices in Oromia Teacher Education Colleges also indicate that high quota is being given to females' college admission. From this point of view, practical evidences reveal that the Ethiopian government, in general, and the Oromia regional state government in particular, have given due attention to girls' education extending to the tertiary level. However, there have been complaints from almost all Teacher Education Colleges that female trainees are over-represented in social Sciences, languages and Esthetics departments. This implies that female trainees escape from Math and Natural Science selection as their field of study. In the case of TVETs, similar practice is found that female trainees escape from joining fields such as Woodwork, General Mechanics, Auto Mechanics and Constructions.

Globally, the issue of differences between men and women in field of study selection has long drawn attention of researchers even in developed countries. Dowd (1999) pointed out that college women in American universities continued to be over re-presented in traditional female fields of study, such as the humanities and education, and under-represented in traditional male felids of study, such as physical sciences, computer science and engineering. Traditional gender differences related to field of study prevail even among those graduates of highly selective institutions. According to the data obtained, men out numbered women in engineering and applied Science fields, the physical sciences, economics and a greater number of men majored in business. Contrary to these fields of study,

women outnumbered men in English, the fine arts, the social sciences and the humanities (which include philosophy, foreign language and literature).

Statement of the Problem

Gender disparity has been a major problem affecting the right of women and has been an important barrier to social and economic development. Nevertheless, the discrimination against women remained pervasive in most developing countries, being at its peak in Ethiopia.

With the implementation of the new education and training policy of Ethiopia, a strategy of narrowing this gap has been designed and girls' education has got due attention. Regardless of these efforts, female college trainees' self-concept and their attitudes towards Math and Physical Science subjects seem to be at its lowest peak. In relation to this, Mead (2006) argued that campaigns to support the college women to enter the sciences, engineering or medicine can only reach and help the young women who is interested and prepared by a background in science and mathematics to take advantages of opportunities offered by colleges.

The author further contends that female college freshmen seldom shift from traditional female fields to traditional male fields such as from fine arts to chemistry, from journalism to engineering, except in rare instances. Researches conducted in Nigeria also indicated that self-concept, and attitude towards science subjects are the causes for the students under achievement in science subjects (Akubuiro and Joshu, 2004). This practice seems to be reflected in our colleges in relation to first year female trainees' stream/ field of study selection.

Emphasizing on the issue of field of study selection, Hyde (1993) cited in Emebet (2001) described that the inequality of males and females in the area of education is quite staggering. The writer pointed out that the inequality is reflected not only in lower levels of attainment and higher dropout rates for girls but also apparent in different curriculum choices offered to or made by men and women at the secondary and tertiary levels:

most notably in the low enrollment figures for women in scientific and technical fields. A similar study conducted in America showed that most US Students' aptitude for science and Math is declining .This was attributed to the effect of role models (Howard, 1996). The existence of such problem is at its peak in the Teacher Education and Technical and Vocational colleges of the Oromia regional state government.

Evidences obtained from the registrar offices of the colleges show that female trainees are over concentrated in some fields of study. The reasons behind this problem, in the context of Oromia regional state, are not yet studied. The intention of this study is, therefore, to asses the main factors that hinder female trainees from joining those traditionally male dominated fields of study.

To this end, the following major research questions were formulated to be answered in the study.

1. What are the major factors affecting the first year TEC and TVETs female trainees' preference in selection of their field of study?
2. What are the possible measures to be taken to overcome these problems?

Objective of the Study

The main objectives of this study were:

- identifying the major factors that affect first year female TEC and TVET trainees' field of study selection; and
- pointing out some intervention mechanisms to alleviate or minimize these problems.

Research Methods

Population of the Study

The population of this study was all second (603) and third year (273) female trainees of TECs and TVETs in Oromia regional state government. First year students were excluded because the data were collected before their admission to the Colleges. As regards the colleges, all the five TECs and the three TVETs were included in the study.

Table1: Sample Institutions and Respondents

No	Sample TECs	Sample size	Sample TVETs	Sample size
1	Jimma College of Teacher Education	112	Wolisso College of TVET	37
2	Assela College of Teacher Education	87	Assela College of TVET	46
3	Nekemte College of Teacher Education	96	Nekemte College of TVET	44
Total		**295**		**127**

Samples and Sampling Procedure

In order to make the obtained information more reliable and representative, three of the five TECs and all the three TVETs were selected on the bases of simple random sampling (i.e., lottery method) and availability sampling techniques respectively. Concerning sample respondents, 295 trainees of TECs and 127 trainees of TVETs were selected using stratified random sampling technique. The trainees' identity numbers which were obtained from the registrar office of the colleges were used to select the trainees. Because they are supposed to give reliable information for this study, all department heads of the colleges were purposively included in the interview. Besides, gender focal persons of each college were intentionally selected for the interview because they are assumed to know the female students' problems in their colleges.

Instruments

In this study, the main data collecting instrument was self-report, open and close ended questionnaire administered to female college students. The questionnaire has two main parts, i.e. the preliminary section which deals with basic information such as name of their college, department and year level. The second part, the main part of course, consisted of 8 open-ended and 12 closes- ended, totally 20 items. All the closed items were presented in the form of four scale rating type ("Always True of me", "Sometimes True of me", "I am not sure" and "Not true of me". In order to supplement the data collected through questionnaire, department heads and gender focal persons of the colleges were interviewed. All the questionnaire and interview frames were locally developed. However, these items were commented by professionals, revised, translated into "Afaan Oromoo" and pilot tested before final use.

Methods of Data Analysis

Basically, this study employed descriptive and qualitative analysis. The qualitative description was employed to analyze the data gathered through the open ended items of the questionnaire and the interview to identify the major factors that affect the female trainees' interest to select the traditionally male subjects as their field of study. In order to make the differences more observaeable, numbers and percentages were given in tables

Results of the Study

In this study, the first question was related to their department selection in both the TEC and TVET cases. Analysis of the result obtained is summarized as follows.

Table 2: **Department Choice of the Participants by the time of joining the Colleges (First choice)**

TEC participants				TVET participants		
No.*	**Department**	**No.**	**%**	**Department**	**No.**	%
1	Social Science	134	45.4	Rural Water Supply (RWS)	4	32.4
2	language	56	18.98	Electricity	32	25
3	Natural science	44	14.91	Surveying	16	12.6
4	Math	29	9.8	Drafting	15	11.8
5	Esthetics	9	3.1	GM	6	4.7
6	EDPM	14	4.7	Rood construction	5	3.9
7	ANFE	9	3.1	IT	4	3.1
8	**Total**	**295**	**100**	Electronics	3	2.4
9				Auto mechanics	2	1.6
10				Building Construction	2	1.6
11				Masonry	1	0.8
				Total	**127**	**100**

* *Candidates under No.1 are by the deliberate/ forced assignment.*

As can be seen from the table, the majority of TEC respondents, (45.4%) admitted that they had selected Social Science as their major field of study. Next to these, language, with 18.98 % responses, is reported to be a second preferred field of study by the respondents.

Furthermore, many of the TVET female trainees (32.4 %) indicated that RWS was their first choice by time they joined college. However, it was noted that they were assigned to this field of study by the districts sent them for training with out providing them options to select from or without considering the interest of the trainees. Thus, analysis of their responses reveals that, about 25% of the students had selected electricity as their major. Information obtained from the instructors disclosed that such kind of females' inclination towards electricity is even a recent phenomenon. It is also possible to see that surveying (15.6%) and drafting (11.8%) were the second and third preferred fields of study, excluding RWS.

Secondly, it was designed to investigate the departments/ fields of study that female trainees prefer least. Accordingly, the following result was obtained.

Table 3: Less Preferred Fields of Study/Departments by Female TEC Trainees

No.	Department	No.	%
1	Math	263	**89.2**
2	Natural science	24	**8.1**
3	Language	5	**1.7**
4	Esthetes	2	**0.7**
5	Social science	1	**0.3**

The above table reveals that high number of respondents (89.1%) reported that they are less interested to study Math. It is also found that Natural Science is the second less preferred department (8.1%). Similar item was presented to TVET respondents and similar result was obtained. This result was also summarized as follows.

Table 4: Less Preferred Departments/ Fields of Study by Female Trainees (TVET Respondents)

No.	Department	No.	%
1	Auto mechanics	31	**24.4**
2	General Mechanics	28	**22.0**
3	Wood Work	18	**14.2**
4	Electronics	12	**9.4**
5	Buil.constru	9	**7.1**
6	It	8	**6.3**
7	Buil.Massonery	6	**4.7**
8	Electricity	6	**4.7**
9	Metal work	3	**2.4**
10	Drafting	3	**2.4**
11	Road Construction	2	**1.6**
12	Surveying	1	**0.8**
	Total	**127**	**100**

As reported by the participants, it was known that Auto Mechanics (24.4%), General Mechanics (22%) and wood work (14.2%) were the three less preferred or most hated fields of study.

During the study respondents were asked about the reasons why most of them escape from Math and Natural science. The majority of them listed out factors such as fear of calculations, feeling of lack of Math ability, poor- self confidence, exaggerated information about Math as a difficult subject, and societal pressure or traditional belief that Math to be males' field of study.

The response obtained from their instructor some how supplement the reasons indicated by the students. The instructors added that most females have Math anxiety. Moreover, Math courses are related to physics and chemistry. However, most Female students call these subjects 'hard sciences' and perceive them to be difficult.

On the other hand, it was found that most female trainees want to join social science and language. This is because most of female trainees thought that such fields are not challenging for them since they have no calculations, they are more of theory.

The instructors' responses exactly go with the trainees' idea that most female trainees prefer social science because they perceive it easily achievable. It was also found that most of them were told by their seniors to join social science department. Contrary to their friends, some participants reported that their parents encourage them to study Natural science or Math. However, most of the respondents indicated that their parents are not educated and had no role to guide them in field of study selection.

Like that of the TEC respondents, the TVET participants were requested to respond to the reasons why most of them escape from GM, Auto Mechanics, Constructions and the like. The nature of such fields demands high labor on practice and actual job, traditional belief that considering these fields of as left for male trainees, perception of difficulty of the subject, less job opportunities, societal and cultural pressures are some of the possible

reasons forwarded by the participants. Their instructors also pointed out that most of female trainees escape from GM or Auto and constructions because these fields enquire labor on practice as well as on job. The instructors further added that these fields are related to Math but most females have feeling of inadequacy in Math. They also pointed out that the TVET participants suspect that they may not be able to get job because of traditional believes. This is because the trainees have heard that some organizations favor males on employment especially in such fields as Mechanics, Wood Work, Electricity and Constructions. Because of such factors, most TVET female trainees prefer secretarial science, surveying, drafting, office management and the like.

In order to investigate their earlier experience, respondents were made to respond to items dealing with role models. Analysis of the result, therefore, shows that more than half of the participants (51.2 %) had no female teachers when they were students at lower grade levels. Just opposite to practical experiences, 43.7% of them indicated that they had been lucky in getting female Math/Natural Science teacher.

A similar question with different content was presented to TVET Participants and similar result was obtained. The majority of the students, (58.3%), reported that they did not know any female engaged in vocational areas. However, 36.2 % of the respondents indicated that they are familiar with females being engaged in the vocational area, such as wood work, Mechanics and electricity. The other suspected reason to have influence on department selection of female trainees' was peer pressure. That is, respondents were asked whether or not their seniors informed them that studying Math/Natural science is a difficult field of area for female trainees. The majority of them (82.4%) responded that their antecedents informed them as these fields are difficult to females. A similar result was obtained in the case of TVET respondents. About 59.1% of them reported that their seniors had persuaded them that such fields as GM and woodwork are difficult fields for female trainees.

With regard to their self-concept, 57.6 % of the TEC respondents and 67.7% of the TVET participants indicated that they did not believe in the presence of high probability of dismissal if they join Math /Natural science, GM, Auto, Wood work Respectively. Contrary to this, 28.1% of the TEC participants and 21.3% of TVET participants indicated that the probability for their dismissal would increase if they join the mentioned fields of study.

What is more, to investigate whether or not the respondents are influenced by traditional beliefs, data were generated. Both the TEC and TVET respondents indicated that they were not influenced by traditional attitudes. That is, 84 % of TEC and 66.1% of TVET respondents indicated that they did not believe that fields such as Math/Natural Science, Wood work, Mechanics and the like are fields to be studied only by males.

Relating some fields of study to job careers, 66.8% of the TEC respondents indicated that they will not be challenged in their careers if they study Math/Natural science. Contrary to this, 26.4 % of them argued that it would be difficult to them at job world if they study Math or Natural science. Different result was found in the case of TVET participants. Among the participants, 69.3% of them reported that it will have some sort of difficulty at job world if females study such fields as Wood work, Mechanics, constructions, Metal work and the like. Contrary to this, 26 % of the TVET respondents indicated that it would not be difficult for them to engage in such workshops.

From practical point of view, it is actually suspected that access to information on how to be successful in Math/Natural science could influence students' field of study selection. With this regard, 56.6% of the participants indicated that they did not have access to information on how to be successful in Math or natural science subjects. Similarly, 47.2 % of the TVET participants indicated that they had no access to information about these fields of study.

On the hand, it is suspected that orientation provided at the beginning of the year, could have influence on their field of study selection. The responses to a question eliciting this idea were summarized as follows.

Table 5: Information/Orientations Respondents provided with before they selected Departments

Question		Responses			
		TEC Participants		TVET Participants	
		No.	%	No.	%
Did you get enough information/orientation about the departments before you are made to select departments?	Yes	110	**37.3**	53	**41.7**
	No	177	**60.0**	69	**54.3**
	I am not sure	8	**2.7**	5	**3.9**
Total		**295**	**100**	**127**	**100**

As it is shown in Table 5, related responses are obtained from both TVET and TEC participants (60% of the TEC and 54.3% of the TVET them indicated that they did no get ample orientation about their field of studies before they selected the fields that they are studying). This might have negative influence on their field of study selection.

Discussions

Analysis of the study implies that most female trainees of TEC are attracted more to social studies and languages. The reason for this is that most female trainees perceive social sciences and languages as less challenging, easily achievable and less practice demanding fields of area. For this reason, social science was their first choice, and next language. This is consistent with the result of a study conducted in USA, which indicated that females outnumbering males in English, fine arts, social sciences and humanities, which include philosophy, foreign languages and literature. Males are outnumbering females in Engineering, Chemistry, Math and

statistics (Dowd, 1999). Similarly, TVET trainees' field of study selection indicated that females commonly escape from some traditionally male fields of study, such as, electricity, surveying, drafting, secretarial science, and information technology. This result again seems to be congruent with the American experience; the Elite College graduates.

The results illustrated in Table 3 and 4 are indicators of the over representation of female trainees in some traditionally female fields of study. On the other hand, Mathematics is the least preferred field of study by female trainees. To some extent, this result is congruent with result of a study conduced in Assela College three years ago (Boki, 2006). Most students, including males, are suspected to have feeling of Math incapability and even Math anxiety. This issue is true even for developed nations. That is, American students are deteriorating in Math and physical sciences nowadays (Mead, 2006). However, evidences indicate that gender differences favor boys in Math and girls in language and arts (Brintner, 2007). The basic reasons for gender differences in mathematics attitudes and abilities seem to be the stereotyped beliefs that math as an exclusive domain of knowledge for the male. Investigations have indicated that historically Math have been a masculine discipline. According to some evidence, although girls seem to believe that studying Math was just as appropriate as for men; their behavior in course selection was more stereotyped (Ernest, 1976, in Seleshi, 1995).

In a similar to the TECs, TVET participants pointed out that fields like Auto Mechanics, General Mechanics, Wood Work and Constructions are less preferred by females since basically these fields are highly related to Mathematical concept.

In the study, an attempted has also been made to find out the most preferred fields of study by female trainees in the study region. The results revealed that most female TEC students in the study area prefer social sciences. The reasons for this are 'self-related' and 'demand' factors. The 'self- related' factors are the self concept the individual has towards that subject. It includes feelings such as "I am capable of this subject" and the like. On the

other hand, the 'demand factors' are such factors as absence of calculations, less demand of practice and absence of other challenges associated with the subject.

In case of TVET participants, most of them give high weight to demand factors and challenges that are expected to appear at job world. As it is given in the result section, they pointed out that such fields as surveying, drafting, and secretarial science not to enquire much labor or practice. Theoretically, the reasons for differences in field of study selection could be various. One of those reasons could be presence or absence role models. As it was described in the result section, more than half of TEC participants reported that they had no good role model. Similar result was found from TVET participants as well.

Studies in the field of psychology provide evidence of locus of control as a changeable variable which can be affected by modeling. From the results of her study, (Teglasi, in Howard, 1996) indicated that internal locus of control in women is stronger in relation to other women than in relation to men. In the present study as well, most of the participants revealed that they did not have good female Math/Natural sciences teacher, or did not know any female technician or wood worker or Mechanic. Having strong theoretical background, this might have negative effect on the students' current field of study selection practices. The participants themselves admitted that their inability to get good role models has discouraged them towards these traditionally male fields of study.

The other factor looked into in this study was peer pressure. Peer pressure, accompanied with traditional attitudes, could have a magnified effect on the female trainees (Kabtamu, 2009). The result shows that, 82.4% of the participants indicated that they were told by their seniors that Math/Natural Science is challenging for females. In relation to this, the National Assessment of Education Progress (NAEP) in America revealed some basic differences between boys and girls. Thus, Mead (2006) stated that boys out perform girls at all grade levels, very slightly in Math and Science. She

further described that girls in American schools have just improved their performance and as a result, they have narrowed or even closed some academic gaps that previously favored boys.

As to the case of our Colleges, the results obtained in this study seem to be in contrasting to the Americans case. Evidence obtained from the instructors' shows that most female trainees who have already joined Math/Natural Sciences are under scoring. However, the instructors admitted that there are few females who are competent and event outperforming their male counter parts.

In this study, it was also slightly attempted to know the extent of their self concept in relation to these traditionally male fields of study. Accordingly, it was found that 57.56% of TEC and 67.7% of TVET participants do not admit in high probability of dismissal if they join these traditionally male fields of study. Nevertheless, most of them had reported that their first choice was Non-Math (please see Tables 3 and 4). The instructors' responses were also found to be contradictory with this view. As to the responses of the instructors, most of the warnings/low achievers in Math/ Natural Science departments are females. The instructors had indicated that only few females in such departments are competent to their male counterparts. Thus, the students' responses are found to be contradictory with what is practically observed in the colleges.

After studying a given field, it is obvious that the next step is joining job world. Thus, it is suspected that the trainees might have retreating from selecting some fields because of fear of challenges/difficulties on work. However, 66.8% of the TEC respondents indicated that they have no fear of challenges on work if they study Math/Natural science. However, 69.3% of TVET participants reported that studying such fields as Mechanics, wood work and metal work and constructions would lead them to face challenges at job world. The supplementary information gathered from instructors also indicates that females do not favor some challenging works such as Mechanics and constructions.

Another possible factor affecting females' field of study selection could be prior access to information that leads to success in these fields. With this respect, 60% of the TEC and 54.3% of the TVET participants reported that they did not get enough orientation about the fields of study that they are made to select. Hence, absence or inadequate orientation most probably leads to less awareness of what to do, what challenges to confront and what benefits to gain later. Thus, this absence or inadequacy of early orientation is suspected to have imposed negative impact on their field of study selection.

As to the measures to be taken by the concerned bodies, the participants requested for different affirmative action. As it is given in the result section, their suggestion ranges from simple orientation and course clarification to the extent of demand of different grading. The participants' demand for positive discrimination measures favoring girls has got some acceptable ground. The instructors also supplemented the students' responses by indicating the appropriateness of some affirmative actions forwarded by the participants. They added that it would be right to minimize the problem by attracting females to these traditionally male fields of study through job opportunities and provision of further education after graduation. Thus, the request for such affirmative actions is congruent with actions that had been taken by such countries as Malawi, Gambia and Mali (MOE, 1999). The result of this study, therefore, shows that affirmative actions should extend beyond the quota system admission of females to colleges.

Findings and Recommendations

The overall objective of this study was to assess the factors that affect female pre service college trainees' field of study selection. Accordingly, the results obtained showed that most TEC female candidates select social science and languages as their major field of study. What is more, most TVET newly entering female trainees favor surveying, drafting, secretarial science and electricity as their major felid of study. On the other hand, it was also found that female candidates in the TECs highly escape from studying Mathematics. Similarly, TVET participants rarely select Auto Mechanics,

General Mechanics, Wood Work and constructions as their major fields of study.

To find out the reasons for such failure, attempts were made to get information based on different suspected factors. Accordingly, the participants tried to list out different factors based on what encountered them personally and their fiends. For the sake of simplicity of presentation, the various reasons were compressed and summarized into two major categories. These factors are:

1. **Internal Factors**: these are factors that originate from the female trainees themselves. Though they were not studied in detail in this study, only based on simple analysis of their suggestions, these factors include academic self-concept, attitude towards some subjects and positive /negative self talk. Generally, the trainees' self made' doubt, which may be objective or subjective, was found to be one factor hindering female trainees from joining such fields as Math, Natural Science (in TECs) and General Mechanics, Wood Work, Metal Work and Constructions in the case of TVETS.
2. **External Factors**: these are factors that emanate from the "out-of self" or from the environment. Naturally, these factors have high explicit and implicit pressure on the internal factors. These factors were not deeply and independently investigated in this study. However, from the results obtained, absence of role models, peer pressures, absence of information and orientation/course clarification, failure of teaches to encourage female students are grouped under this category.

Based on the aforementioned findings, the authors propose the following recommendations:

1. Recommendations for Short Term (Immediate) Implementation

- The colleges, i.e., the TECs as well as the TVETs, should provide orientation and course clarification, with the presence of female instructors from these fields and gender focal persons before the students select their field of study.
- Especial attention should be given to those female college trainees who have already joined those fields that are escaped from by most females. Based on their interest, the colleges should arrange tutorial programs and extra practice to enable them compete with their male counter parts.
- The colleges should provide incentives for female trainees who have been successesful in such fields so that they can gain recognition and confidence and they can be exemplary students for others.
- The college gender committee should not only be established but also be fully functioning and empowered. The gender committee should provide guidance and support to female trainees by the time they deserve it in relation to field of study selection.
- Female trainees who complete their study from TVETs in such fields as Wood Work, Mechanics, Constructions and the like should get equal job opportunities to males.

2. Recommendations for Long Term Implementations

- The districts, collaborating with Oromia Education Bureau (OEB), should recruit more female teachers who graduate in Natural Sciences and Mathematics so that they can act as role models for their students starting from the primary level.
- Teachers, teaching both at primary and High school levels, should encourage and pay more attention to girls, especially in relation to subjects like Math and Natural sciences. They also need to work towards the development of feeling of capability and self- concept towards mathematics and natural sciences.

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